# ELECTRICAL WEST

## *Siamese Twins*

Cut them apart and both may die. Before there could be selling there was engineering. Before there can be more engineering or construction there must be more selling—load building. Whether realized or not there exists a blood bond between the men and women who sell and those who plan, engineer, install, operate and maintain.

To reemphasize this bond of mutual interest, mutual survival, this issue begins a *new* Electrical West. To serve better the specific interests both of engineering and of selling in the electrical industry in the West, the magazine is divided into two sections—"Sales of the Month," and "Engineering and Construction of the Month."

To pump life and action into the morale of the industry we go to a more direct, intimate style—brief, newsy, interesting. To revive our industry from the bottom of the great depression we issue this challenge—

*Sell* so that we may *build* again;
*Build* so that we may *sell* again.

## NEW

— in Purpose

— in Style

— in Service

— in Brevity

— Arrangement

— Completeness

## *In This Number*

WHAT INDUSTRIAL RECOVERY MEANS TO YOU—

MONEY IN THE AIR—

JULY, 1933

Twenty-Five Cents Per Copy

McGraw-Hill Company of California

# RECOMMEND....

GENERAL CABLE

# TRENCHLAY

U.S. PAT. NO. 1,904,525

Power Type—Specification No. 3003
Control Type—Specification No. 3103
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Railway Signal Type—Specification No. 3203

*The Original*
NON-METALLIC SHEATHED CABLE

**BIG JOBS, little jobs—single or multiple circuits—you will find many opportunities to simplify construction and provide a more reliable installation with TRENCHLAY. Its advantages, including material economy, are obvious.**

**Light weight makes easy handling. Nothing to rust or corrode away » » No metallic covering to pick up stray currents » » Simple trenching to install » » A cable impervious to soil acids or ground moisture » » TRENCHLAY is the ideal conductor for permanent circuits where overhead construction is neither desirable nor economical.**

**Regardless of the underground circuit problem, there is a TRENCHLAY type which efficiently meets the need.**

*Write for the "Specifications" noted.*

# GENERAL CABLE CORPORATION

**420 LEXINGTON AVENUE, NEW YORK CITY • OFFICES IN PRINCIPAL CITIES**



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GIFT OF PUBLISHER JAN 10 1935

the new
# ELECTRICAL WEST

for July, 1933
Volume 71—No. 1

## Let's Go Native

▼

WESTERNERS, we are called. Wide open spaces, special brands of climate, pioneer conditions have made us that way. It has been possible out here to be friendly, neighborly, helpful to each other, to know each other by nickname—a precious quality. The West is youthful, and like youngsters Electrical West in common with its team-mates in the past has tried hard to be grown up, dignified, serious minded about the industry. The tremendous developments in power have deserved dignified treatment. The problem of the industry then was of establishing itself as a basic force in the community. We like to think we were fairly successful in bringing to these great works the respect to which they were entitled.

NOW the problems are different. To get more electricity used in more ways by more people, is the job today. That requires the fusing of engineer with salesman, of utility with dealer, of manufacturer with contractor, of inspector and regulatory commission with the industry, of every branch and every person in every activity in the industry into one group, headed in the same direction, with similar aims and, more important, the ability to live under the same roof together. This requires intimacy, person to person contact, mutual self interest.

SO let's go native. Mr. McGraw took us off our feet with this surprising observation, "You have a much more intimate knowledge of the West and its people than your magazine reflects. Why can't you be really Western?" Self analysis proved him right. And this, then, begins a NEW Electrical West. You'll find us far more personal, more intimate, free and easy in style as befits our West. We will be direct, plain spoken, sincere. We'll fight for what is right, fair, and decent. We will lend a helping hand wherever we can, editorially and in person. We intend to see that everyone who does a constructive job gets a deserving pat on the shoulder. We hope to inspire what-it-takes in you of the industry to bring back better times.

OTIS Skinner, the great actor, once told an audience that it had played its part well, that it was just as important to a fine theatrical performance as the actors. We feel the same about our readers. So we earnestly ask you now that you do your part toward the new Electrical West. Keep us in the know so that we may do the same by you. Consider yourself elected a member of the editorial staff. There is a whole "new deal" of publishing in our heads to be developed and brought forth to you step by step as fast as time, strength and revenue permit. Return with us to the good earth, to naturalness, to comradeship and to playing the game together. The West is young. The West is human. The West likes a good fight and square shooting.

RIDE 'em, Cowboy! We've gone native.

▼

### *No. S. S.*

HAS the new tone of cheerfulness evident everywhere affected you too? Events of the last few weeks have changed lethargy, watchful waiting and hoping into expectancy, excitement and confidence. As business indicators have left the lows of February and March behind and surged steadily upward, electrical people are talking about better business. "May was the first time in 27 months we've been in the black." "Shipped a carload of refrigerators last Tuesday." "June is running 22 per cent ahead of last year." "We made 51 per cent of our 1933 quota in five months." "Our sales force is to be doubled." These are actual quotations from men in the e'ectrical business.

### —Read

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Unless our judgment is wrong, there will be no customary summer slump in 1933. Everyone is going to work. Action is the new slogan.

▼

### *Convention*

WELL, what did you think of the "Convention in Print?" For us to discuss the program would hardly be in good taste—something like the program committee boasting. You fellows can do that. Drop the editors a line.

But we missed something. The human, personal relationship can't be put in cold type. And that's a big part of a real convention. The informal hotel room sessions. "Come seven." Multi-colored badges. "Yeh, room 407 before dinner." A comfortable davenport in the lobby just watching people. The Convention Daily. "Five, five and five plus four bits a hole on the side." (That must have been in 1929). Receiving line at the president's reception. Banquet. Biltmore, Huntington, Utah, Multnomah, Del Monte, Olympic. Convention photograph passing from hand to hand half hour after taking—"How do they do it?" Breakfast—double order of tomato juice.

Let's hope that there will be a real convention in 1934.

FOR those who depend on the printed convention report for their knowledge of the program, we've picked out a few high spots from the 67 contributors' statements. We underlined them in our marked copy of the "Convention in Print."

"Future prosperity depends upon how well those of us representing the various branches of the industry cooperate in telling our sales story to the public." —P. M. Downing

"Time to be more militant!"—L. T. Merwin

"In relation to humanity, the electrical industry is far more important than its critics. Its march has just begun. It has a destiny to fulfill."—W. C. Mullendore

"A tax-exempt 'yardstick' is not 36 inches long."—Frank T. Post

"Our service must be made so attractive as to alleviate unfair competition." —W. F. Raber

AND while we speak of the June issue, if anyone has an extra copy or is through with his, we'd appreciate receiving a few. We have been completely cleaned out of extra copies and have a number of requests for them.

# Sales of the Month » » »

## Furnishings Week Includes Appliances

KITCHENS became "living rooms" under stimulus of the 18th amendment, coupled with the impetus of several years of refrigerator advertising. Laundries, too, will soon be considered a part of the well furnished home. This significant trend is given a strong boost in a forthcoming event. Electric appliances, it is announced by Frank Runyon, managing director of the Western Furniture Exchange, 180 New Montgomery St., San Francisco, will be well featured in the 36th consecutive Furniture Market Week, combining with it the 6th Western Furniture Institute, to be staged in the exchange, August 7 to 14.

Tying together the various Exchange exhibitors' interests, the Furniture Manufacturers' and Wholesalers' associations, the apparel interests and home furnishing in general, the marketing week will center about a series of noonday luncheons to be known as Western retailers' conferences, with an expected attendance of 800 each day. The main event of the luncheons will be a talk by Dr. Alfred Haake, managing director, National Association of Furniture Manufacturers, who will speak on the work of the National Manufacturers' Association code and the place of the merchant and manufacturer in the "New Deal."

In fact, the theme of the entire conference and exhibit week will be "sharing in the New Deal—developing manpower to share in the New Deal."

Attendance from the furniture group is expected to be 2,000 and from the apparel group another 2,000 during the week. The Western Furniture Institute will have as its educational feature speeches and exhibits by the members of the faculty of the University of California pertaining to retailing and merchandising, displaying and explaining model store installations.

On Wednesday, Pacific Gas and Electric Co. sales department's road show attraction "The Blue Vase" will be presented. On Friday, August 11, the advertising club will present a George Bernard Shaw takeoff playlet. Electrical merchants are extended an invitation to participate by Mr. Runyon.

▼

## Refrigeration Bureau Goes on the Air

Electric refrigerator sales are being stimulated in northern California by a series of 52 radio broadcasts sponsored by the Northern California Electric Refrigeration Bureau. Four 15-min. periods are broadcast weekly, two over KPO Tuesdays and Thursdays from 10:30 to 10:45 and two over KJBS Wednesdays and Fridays from 3:30 to 3:45 p.m.

Broadcast programs are conducted by Lauretta LaMarr, educational director of the Refrigeration Bureau, and are built around a booklet published weekly, entitled "New Kitchen Secrets." The booklet contains a series of complete menus for a week, together with recipes and cooking suggestions. Additional feature is a list of the supplies necessary for preparation of the week's menus together with their approximate cost.

In order to secure the booklet the housewife must call at some refrigerator dealer's store. No books are sent by mail. Since the booklet changes every week, she must go back to the store to secure the current copy. In this manner the dealer soon gets to know her.

Each of the manufacturer or distributor members of the bureau imprints his advertisement on the back cover of the booklet supplied his dealers together with the dealers' imprint.

To date the campaign has been meeting with marked success.

## May Co. Breaks Washer Sales Record

Records fell during the recent washer and ironer campaign conducted by the May Co., Los Angeles. A total of 233 units were sold in a 60-day drive, making the campaign the most successful in the last five years. Sales stimulus came from cash bonuses offered to the salesmen and not from special offers or price concessions to purchasers. Prize money was distributed to the salesmen by means of a large punchboard with 275 punches on it for a total of $400. There were three classes of prizes expressed in punches; for sales of the Easy centrifugal-dryer type washer at $170 the salesman was given three punches; for sales of washers and ironers, ranging from $100 to $149, two punches, and for units selling at less than $100, one punch.

The sales force was divided into two teams, each captioned by a woman demonstrator. W. O. Woolston, manager of the electrical department, and N. F. Edwards, manager of the washing machine department, chose the sides among the sales crew. According to F. S. Fenton, Jr., Western district manager for the Easy Washing Machine Co., the higher price units sold in the campaign were almost equal in number to the lower priced units.

▼

## *Revue*

***Household utilities staged a revue in the window of Nathan-Dohrman Co., San Francisco, for a whole week, and like all revues had them standing to see the show. The entire Stockton street windows of the store were used by George Plevin, buyer and manager of the electrical department, and L. B. Goldsmith, promotion manager, to demonstrate appliances and other kitchen and household devices either in use or in manufacture. Police had to keep the sidewalk clear the first few days. Hours of "performance" were from 11 a. m. to 1 p. m. and at 2:30 to 4 p. m., when streets were crowded either with noon traffic or shoppers***

» » » »

## *Modern*

***Backgrounded by this portable display of shelves, chromium, and the latest in lighting—illuminated panels—ranges, refrigerators and kitchen mixers are shown off to the very best of advantage in the district offices of Los Angeles Bureau of Power and Light. R. T. Dickey, manager of the appliance room, sends it with John Stigman, range salesman, who actually cooks food in the sub-offices, handing patrons who come to pay their bills samples of delicious electric cooking. He develops prospects for ranges and refrigerators who are passed on to local dealers to sell. Shelves, on which are placed colored enamelware and pottery, are lighted from a lamp above, hidden by the chormium trim. Panels are of parchment with 12 150-watt lamps behind them***

## Los Angeles Holds Air-Conditioning Show

One of the first public showings of air-conditioning equipment was made in Los Angeles during the week of May 22. Sponsored by the American Society of Heating and Ventilating Engineers in conjunction with the Los Angeles Bureau of Power and Light and the Los Angeles Chamber of Commerce, the air-conditioning exhibit was well attended. Interest aroused by the show gives promise of considerable future business.

Complete air-conditioning equipment was on display and in operation, showing cooling, heating, humidification, dehumidification and filtering devices, using both mechanical and ice cooling in conjunction with gas and electric heating. Exhibitors included the Carrier Engineering Corp., Frigidaire, English & Lauer, York Ice Machinery Corp., Union Ice Co., Westinghouse Electric & Mfg. Co., Payne Furnace Co., Ilg Heating & Ventilating Co., U.S. Electrical Mfg. Co., Sterling Electric Motors, Inc., Thermador Electrical Mfg. Co. and the Los Angeles Bureau of Power and Light.

Credit for the well-planned, and to the layman, spectacular exhibit goes to W. W. Pearce, industrial heating engineer of the Los Angeles Bureau of Power and Light, chairman of the exhibit committee.

The American Heating & Ventilating Society, in conjunction with the exhibit, held its convention May 23, which was attended by over 400 people. The convention program included papers presented by prominent men in the air-conditioning and public service industry. Further information regarding the convention, exhibit or papers will be supplied by E. H. Kendall, of English & Lauer, Inc., 1224 South San Pedro St., Los Angeles, Calif.

This first air-conditioning exhibit to be held on the Pacific Coast was pronounced an effective method of introducing the public to the benefits of conditioned air and those attending were convinced both of the value of this means of public education and of its great possibilities as an effective business builder.

▼

## Fair Trade Act Gets "Teeth"

Provision has been made for legal redress in cases where a person knowingly and willingly offers for sale, advertises or sells any commodity at less than the price stipulated in any contract entered into between the producer and seller, whether a party to the contract or not, by an amendment to California's "fair trade act." Suit already has been brought by one northern California electrical distributor against a dealer for violation of contract provision under the terms of the new law.

The original act, designed "to protect trade mark owners, distributors and the public against injurious and uneconomic practices in the distribution of articles of standard quality under a distinguished trade mark, brand or name" passed in 1931, was largely ineffective because lacking in "teeth." Under its terms no contract relating to the sale or resale of a commodity which bears a trade mark, brand or name and which is in fair and open competition with commodities of the same general class was deemed in violation of any California state law, when the contract stipulated that the buyer would not resell such a commodity except at the price stated by the vender. The same provision applied to resale. Only exceptions were in cases of closing out stocks for the purpose of discontinuing the sale of any such commodity, when the goods were damaged or deteriorated and notice was given to the public, or when the goods were sold by an officer acting under the orders of any court.

## Anti-Merchandising —Law Unconstitutional

By a five to two majority the Supreme Court of Kansas has held that the anti-merchandising law limiting utility appliance sales and activities in that state is unconstitutional. The opinion reversed a decision of the Shawnee County District Court. The case had been brought by Cities Service Co. which held that the Kansas law was in violation of what it esteemed its rights and privileges. The decision of the higher court said in part:

"With no feature of public welfare actually involved, the conclusion surely must follow that to deprive these plaintiffs of an implied power and privilege incidental to their general business, is unreasonable, arbitrary, unjust and oppressive. Other individuals, firms and incorporations can engage in merchandising these appliances, but this particular class cannot. They are deprived of the actual protection of law. We, therefore, conclude that the act is unconstitutional as being in violation of the 14th amendment to the constitution of the United States."

The state appellate court in Texas reached a similar decision in a case involving the right of the San Antonio Public Service Co. to purchase and sell gas and electric appliances. This decision held that "the appellant had the right to engage in the purchase or sale of gas and electric appliances in connection with and as being incident to its principal business of manufacturing, supplying and selling gas and electricity to the public for heating, lighting and power purposes."

Bills similar to the Kansas law have been proposed in various Western states during recent years.

▼

¶ **J. W. Thompson** has been appointed Pacific Coast representative for the Sparks-Worthington Co., manufacturers of Sparton radios and refrigerators.

PAULIST MISSION CLOSES SUNDAY
THIS VALUABLE SPACE
beside the P. G. & E. sales story is open in your local newspaper
USE IT
P·G·and E·

# "WHERE CAN I BUY THIS APPLIANCE?"

## It pays to answer this question asked by Two Million Readers of P. G. and E. advertisements

ELECTRIC APPLIANCE dealers—familiarize yourselves with this company's advertising. It has a profitable application to your own businesses.

The advertisements prepared by the P. G. and E. are sales promotional in character. Their primary purpose is to create and stimulate consumer-demand for the appliances you sell by stressing the advantages and conveniences of using them.

We want to develop a real appreciation for what ELECTRICITY can do in the home—at a cost so small that it has become the cheapest as well as the most helpful servant a housewife can have.

To stimulate a full and intelligent use of domestic electricity, we are spending thousands of dollars every month in DESIRE-CREATING publicity. In order that its selling force may be tapped by dealers everywhere in our territory of service, it is published in two hundred eighty-nine newspapers.

While backed up by supporting mediums, it is these newspapers that do the real job. It is in this medium that you are best able to TIE-IN with specific merchandise offers that will capitalize on our DEMAND-BUILDING copy. We try and prepare P. G. and E. advertisements so that this can be done at lowest possible cost to you.

The P. G. and E. advertisement, dominating the page on which it appears, assures a high percentage of readers per thousand circulation. These readers are invited to "See Your Local Dealer." This invitation, however, only partly answers the question—"WHERE CAN I BUY THIS APPLIANCE?" *Your* name, make, and price should logically follow—published in adjoining space.

The exact procedure in publishing TIE-IN ADVERTISING on a systematic, planned schedule is explained in the P. G. and E. Dealer Bulletin. If you are not already on our mailing list, we will gladly send it to your store each month. Address P. G. and E., 245 Market Street, San Francisco, Room 428.

**P·G·and E·**

**PACIFIC GAS AND ELECTRIC COMPANY**

*Owned · Operated · Managed by Californians*

# Money in the Air

## Theory and Practice

AIR conditioning—a new application for electrical services — confronts the electrical industry. To realize on its great potential benefits in sales and load building, it is imperative to have a working knowledge of the theory, the apparatus, the applications and the possibilities of this new development.

Contrary to general opinion, the theory of air conditioning is relatively simple. Man, as an animal, finds the greatest creature comfort under certain atmospheric conditions. In digesting his food, heat is generated, the energy thus created supplying the muscular and brain energy necessary for his existence. As he is so constituted that his body automatically maintains a normal temperature of 98.6 deg., excess heat must be dissipated to prevent injury to his system.

Body heat is thrown off in three ways: By convection, in which the air immediately surrounding the body absorbs heat and moves away; by evaporation of the moisture supplied to the skin surface through his pores; and by radiation, the latter being less important in summer than in winter. External conditions which affect these phenomena have a direct relation to physical comfort. The quality of the air immediately surrounding the body is the most important for physical well-being. Aside from cleanliness and freedom from objectionable odors, proper temperature, moisture-content, and motion of the air are essential to comfort. Air temperature determines the ability of the body to dissipate heat by radiation, the lower the temperature the greater being this effect. Humidity, or the ability of the air to absorb moisture, i.e. perspiration, regulates the rate of heat dissipation through evaporation. Humidity, incidentally, is a measure of the amount of water vapor present in the air and expressed as a percentage, absolute dry air being expressed as zero per cent and completely saturated air at 100 per cent. The amount of water vapor or the saturation of the air depends largely upon its temperature. Cooling partially saturated air will cause the water vapor to condense out while heating dry air will increase its ability to absorb moisture from surrounding objects. As the air approaches saturation, that is, has a high humidity, it will absorb less moisture from the body, an example being the hot "sticky" summer weather which is so uncomfortable in some localities. Air motion affects both convection and evaporation.

Obviously, if the temperature is increased and humidity decreased a compensating effect upon the body's ability to dissipate heat is obtained. Hence, various combinations of temperature and humidity and air motion will have no appreciable effect on the heat dissipation from the body.

It has been determined that the average person is most comfortable in temperatures between 67 and 75 deg. F. and with humidities from 30 to 70 per cent. These limits define the "comfort zone," a term which will have increasing significance as air conditioning becomes generally accepted. It is the function of air conditioning to produce atmospheric conditions within these limits.

To accomplish this air conditioning apparatus must provide the means for heating and cooling, filtering and deodorizing, adding to or reducing the moisture content, and circulating the air within a room or building. This apparatus is neither complicated nor untried. Heating and cooling is generally accomplished by passing the air over

*Essential for a proper air-conditioning installation is a complete survey of the building. This data form tabulates the information necessary in the preliminary steps of engineering the job*

JOHN J. NESBITT, INC.
Holmesburg, Phila., Pa.

DATE _____

FROM _____

NESBITT CONDITIONING SURVEY

PROSPECT _____ Who will install job _____

LOCATION _____

OWNER _____ To whom will bids be made _____

OCCUPIED BY _____

KIND OF BUSINESS _____ Age of building _____ No. of floors _____ Floor _____

Nature of Job:
☐ Summer Cooling ☐ Winter Heating ☐ Winter Heating and Humidification ☐ Complete Year-Round Conditioning

What Engineering Service is Desired from this Office:
☐ Heating Load Calculation ☐ Cooling Load Calculations ☐ Specification and Price of Units Other Service _____

When either heating or cooling load calculations are necessary, sketch on back of this sheet a plan of the room or structure oriented with compass points and showing the following information:
a. Dimensions including ceiling or roof heights
b. Thickness, construction, and materials of walls, partitions, floors and ceilings or roofs
c. Number, location and size of windows, doors and skylights with notes as to exposure, construction, tightness, weather strips, etc.
d. Condition of adjoining spaces heated or conditioned? e. Location and size of vents and openings and capacity of exhausters.

When cooling load calculations are necessary, include the following additional information:
f. What hours is cooling necessary? _____
g. What wall and window areas are exposed to sun during cooling? _____ Shaded or unshaded? _____ With or without Awnings? _____
h. Number of occupants and activity? _____
i. Wattage of lights during cooling _____ H. P. of motors during cooling _____
j. Number and type of gas burning appliances _____
k. Gas burned per hour _____ Are gas appliances ventilated? _____
l. Note other factors affecting cooling load. _____

When specification and price of cooling units are required: What equipment is specified:
Direct expansion _____ Ice _____ Brine _____ Natural water (give temperature) _____
What quantity and temperature of compressor cooling water is available _____ Pressure _____
What inside temperature and R. H. or W. B. are desired _____
What type units seem applicable _____ What number _____
What current is available _____ Phase _____ Cycles _____ Volts _____
If ventilation is necessary, what quantity of fresh air is to be introduced? _____
Are there any local codes limiting the use of refrigerants? _____
What special features as to noise, current load, heat, cold, humidity, fumes, control, architectural or interior decorating details are to be considered? _____

When specification and prices of heating units are required: Total load, if known _____
What steam pressure or hot water temperature is available? _____
What inside temperature is desired? _____ How much ventilation? _____
What type units seem applicable? _____ How many? _____
Is humidification desired? _____ Is odorless steam available? _____ What water pressure and temperature _____
What current is available? _____ Phase _____ Cycles _____ Volts _____
What special features as to noise, current load, heat, cold, humidity, fumes, control, architectural or interior decorating details are to be considered? _____

ANY FURTHER DATA

Note: If our standard unit and standard piping arrangement can be used. Sketch special details.

sets of coils through which steam or a refrigerant passes. Steam or hot water may be obtained from the usual furnace or boiler installation, the refrigerants from the now common refrigerating mechanism. Filtering means nothing more than passing the air through a material or series of baffles which will remove suspended particles. Dehumidifying is accomplished by the simple process of heating the air prior to cooling it to the proper temperature, humidifying by passing the air through a mist chamber. Circulation is provided by fans or blowers.

Air conditioning apparatus is, at present, classified under two headings. Unit conditioners are small, selfcontained units for individual rooms. The central plant installation, as its name implies, serves a number of rooms or an entire building through a duct system from a large installation generally associated with the heating system of the structure.

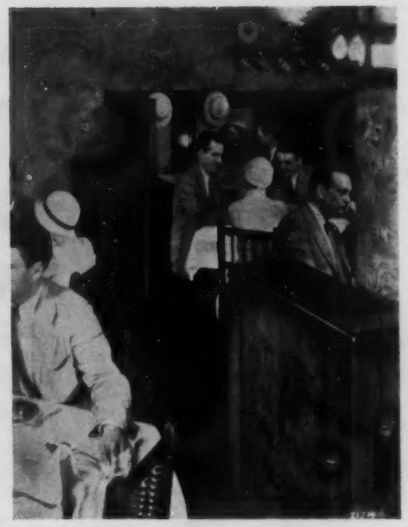
Only when it is realized that on a few days a year do climatic conditions approximate ideal living conditions do the possibilities of air conditioning become apparent. Not only is every building in which people live and work a potential user but also many industrial processes would benefit by air conditioning through better products, increased working efficiency and reduced wastage. With air conditioning, the electrical industry stands on the threshold of far greater possibilities than it did ten years ago when it first began to appreciate electric refrigeration. Ten years hence it can look back upon a decade of real public service in increased health and comfort and profitable business if it will capitalize on this opportunity by aggressive selling throughout the entire industry.

# Unit Types

A complete air-conditioning plant in a compact, unobtrusive package designed to harmonize with the fine interiors of modern homes and offices—that is the definition of unit air conditioners. In purpose and size they are similar to the conventional steam radiator which they supplant. All of the apparatus necessary for heating, cooling, filtering, humidifying or dehumidifying and circulating the air is erected as a unit in a cabinet. The unit-type of conditioner is primarily designed to afford independent control of different rooms, being available in several sizes and a wide range of performance.

This classification of air-conditioning equipment may be further segregated into two main groups. In the first the refrigerating equipment for supplying the cooling medium is housed with the remaining conditioning equipment in the individual cabinets and heating obtained either from the existing installation or an electrical element also mounted in the cabinet. This design is particularly applicable to conditioning the air of a single room or localized areas, electric heat being used where climatic conditions are favorable.

In the second group falls the unit-type of conditioner to which both heating and cooling mediums are piped from centrally located points. Steam or hot water for the heating coils of this group of units may be taken from the existing heating installation. The refrigerant may be a gas supplied from a central compressor or cold water from an ice-melting tank or some other source, the water being circulated by a suitable pump. In general there are two styles of unit conditioners, the floor type and the ceiling type. Most manufacturers include in their floor type units a provision for all of the phases of air conditioning. Most ceiling-type units provide only for the heating and cooling of the air. Because they are inconspicuous and harmonize with furnishings and decorations, the floor-type units are more suitable for home and office installations, while the ceiling type may be used advantageously in factories, drafting rooms, etc.



*Floor-type unit air conditioners installed in a dining room. Flexibility of installation is one advantage of this type of equipment*

*Cut-away view of a unit installation served from a central point in the basement of a home. Unit conditioners circulate conditioned air in each room, heating being supplied from the steam or hot water heating plant and cooling from the compressor plant. In this case room units take the place of radiators*

A. Heating lines; B. Drain line; C. Refrigerant lines; D. Water line to supply humidifier when Conditioner is used for heating the air; E. Electric connections; F. Water line for condensing the refrigerant. G. Drain outlet.

In all designs, fans, blowers and compressors are extremely quiet in operation. The accompanying illustrations depict the wide variety in applications in the unit-type of conditioners, as well as their pleasing appearance and compactness.

Flexibility in installation is the paramount advantage of the unit-type of conditioner. With this type of conditioner desirable results can be obtained in existing buildings without major alterations. Because of their portability, they are applicable for leased premises. Also, where manufacturing processes are changed, the units are easily moved or increased in number to suit the new requirements.

When it is considered that the only connections needed for the installation of a unit-type conditioner are the refrigerating, supply and return lines, water and drain lines, steam supply and return lines, and electrical connections for fans and humidifiers, it will be apparent that the floor-type unit lends itself readily to the air condition-

# THE WESTINGHOUSE UNIT AIR CONDITIONER

## *. . . a "fresh air treatment" for business*

Sweltering heat . . . depressing humidity — twin millstones about the neck of business during hot summer months — can now be banished.

May morning freshness is at your fingertips the year 'round in the control switches of a Westinghouse Unit Air Conditioner.

No half-way, makeshift "room coolers" — these Westinghouse units! *Complete*, modern air conditioning — every phase of it — is built into these smartly designed, compact, easily installed cabinets.

Cooling and de-humidifying in summer — warming and humidifying in winter — circulation and filtering the year 'round — Westinghouse Unit Conditioners do the whole job, with economy that makes them thoroughly practical and with Westinghouse engineering reliability that makes them a source of continuous, trouble-free satisfaction.

Air-cooled comfort provided by Westinghouse equipment invites and holds patronage for restaurants, retail shops and stores, and service establishments of all kinds. It prevents "summer slumps" in employee efficiency and morale. It is an investment that pays for itself many times over.

Write today for booklet "Air Conditioning for Health, Comfort, and Profit."

*Appetites are keener—customers more friendly—in the air conditioned restaurant.*

*Air conditioning in the sales room keeps customers more receptive—employees more alert.*

**Westinghouse** *Electric*

SEND FOR BOOKLET

Westinghouse Electric & Mfg. Co.,
1 Montgomery St., San Francisco, Calif.

Please mail your book "Air Conditioning for Health, Comfort and Profit" to

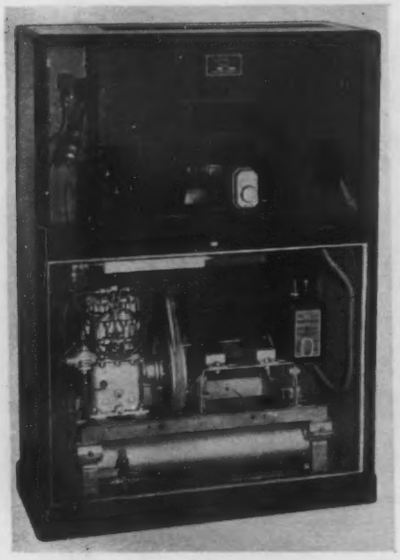
Name_____

Business_____

Address_____

City and State_____ E.W. 7-33

# Central Plant



*Rear view of a self-contained unit conditioner suitable for small offices or single rooms. Refrigeration is supplied from the compressor in the base, heating from hot water or steam. Humidity control and circulating fans occupy the upper half of the cabinet*

A complete air-conditioning plant provides for the filtering, heating or cooling, humidification or dehumidification of the air. With the central system of air conditioning, the apparatus necessary is grouped at a central location, and the conditioned air is distributed by means of a blower or fan to the various sections of the building by means of a system of ducts.

Central plant systems can be grouped as follows:

1. Air conditioning for commercial processes.
2. Air conditioning for comfort.

Air conditioning for commercial processes has been a common practice for many years. The successful processing of many products require extreme, yet constant, temperature and humidity conditions. This field is a large and extremely interesting one, but to cover it would be beyond the scope of this discussion.

Air conditioning for comfort can be divided into two classifications: Small unit-type central plant installations and large central plant installations.

Unit-type central air-conditioning systems are particularly adaptable to the home. They have one major advantage over the unit-type cooling in this service, wherein an individual cooler is placed in each of the various rooms. The central plant can be run under selective operation. This means the cooling can be applied to any portion of the house at will. During the day two or three rooms on the lower floor can be conditioned. In the evening, in case of a party where numerous guests are entertained, the entire capacity of this system can be directed into one room. For half an hour or so before retiring, the system can be applied to the cooling of the bedroom space, taking out the heat of the day, after which it is oftentimes possible to shut the refrigeration off entirely and operate the plant as a ventilating system only. Such a procedure of operation requires a little effort on the

*Ceiling-type unit air conditioner installed in a lunch counter. Baffles direct the conditioned air toward the patrons*

ing of existing structures. These connections, all carried in small pipes, can be made from underneath the floor extending up within the unit enclosure. Units suspended from the walls or ceilings are not as pleasing in appearance because of these connections but this is not a limiting factor, particularly in factories where good appearance is not essential or where floor space or other considerations make either the central plant installation or the floor-type unit impractical.

Potential users of the unit-type conditioner are clubs, restaurants, recreation parlors, barber shops, beauty parlors, dental and doctors' offices, hospital bedrooms, private offices, small stores and shops. These users are more likely to find the single completely self-contained unit satisfactory for their purpose. For larger areas, such as hotel suites, large restaurants, department stores, and factories probably will require several such units supplied from central compressor and heating plants. Particularly in large existing structures which are without adequate ventilating ducts will the unit-type of conditioner find a wide field of service.

The selection of unit conditioners for a definite duty is based on calculations made in the same manner for central plants. It is suggested that the contractor-dealers, power company salesmen and others interested in the sale of this equipment familiarize themselves with the practice of air conditioning sufficiently to make an intelligent survey of a prospective job. The information obtained should be forwarded to the manufacturer for analysis and recommendations as to capacity and installation of the equipment.


# *New Profits*

*FOR PUBLIC UTILITIES*

Frigidaire Air Conditioning Equipment offers the Public Utilities Company an opportunity that cannot be duplicated by any other electrical equipment.

The field is new. The need is unquestioned. The market is unlimited. And the Frigidaire line is complete. There are compact Frigidaire Air Conditioning units for homes. There are models for offices and restaurants. There is special heavy duty equipment for large retail stores.

With this complete line to sell—with a rapidly growing public interest—and with the name "Frigidaire" to assure dependable performance—here are possibilities for immediate sales and a future power load which you cannot afford to overlook.

FRIGIDAIRE

AIR CONDITIONING EQUIPMENT

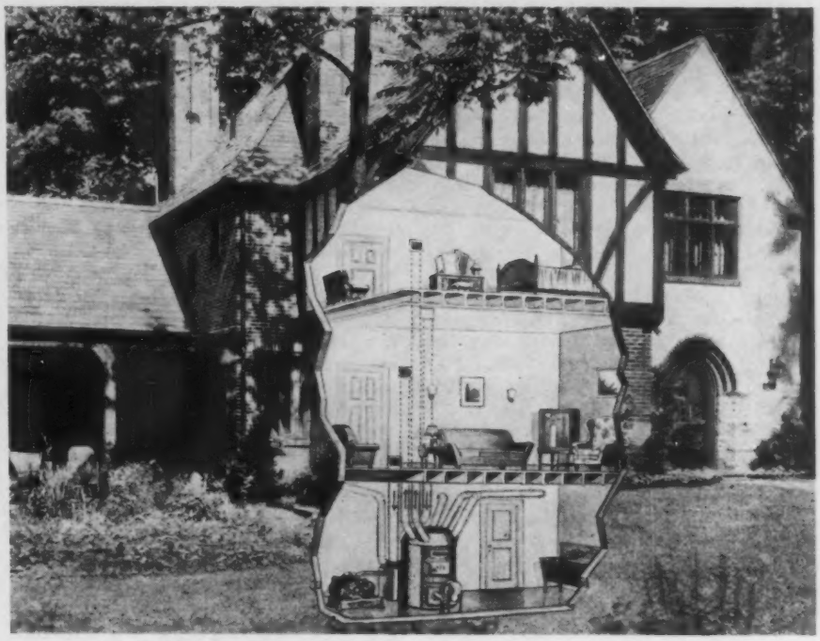
A GENERAL MOTORS VALUE

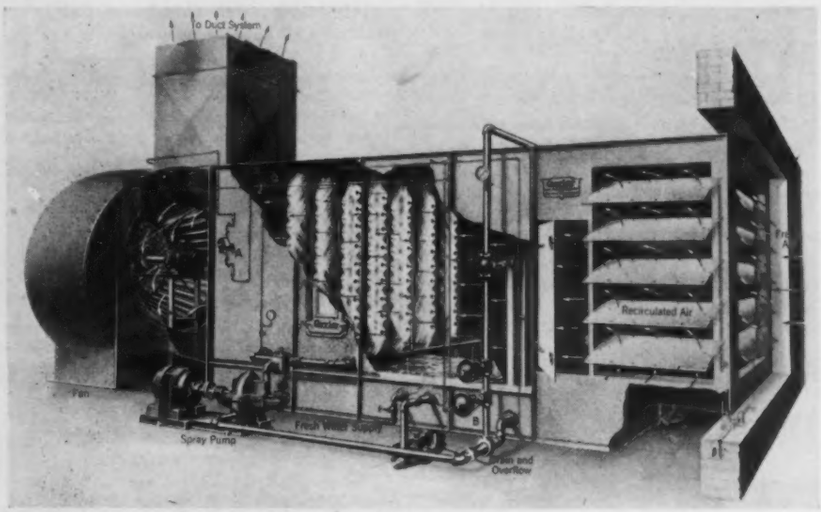
part of the home owner, and at the same time materially increases the usefulness of the plant, as well as decreasing the cost of its operation, bringing air conditioning within the means of many more families.

The unit air conditioners as applied to the central system are, in most applications, a larger replica of the unit room air conditioner. Their construction is very similar, being complete with a fresh air inlet, filter, spray chamber for humidification and coils for heating and cooling, together with a built-in fan for the circulation of the air through the duct work. All equipment is closely assembled and encased by a neat galvanized iron housing, but without the decorative finish. The fan is of a type suitable for circulating air through the duct system, which requires that the air be delivered at a greater pressure to overcome the flow resistance.

Large central plant air-conditioning systems for human comfort find their field of service in theaters, auditoriums, meeting halls, large department stores, restaurants, office buildings and various other types of structures where people group together in great numbers. The investment required on these large central plants is considerable. To sell these plants, it is, therefore, necessary to assure the purchaser that he will receive a return upon his investment. Earnings of such an air-conditioning system may be through a direct increase in the patronage of a business establishment, such as a store or the-

*Fig. 1—Cut away view of central plant installation for an average home. This combination of a warm and cool air system shows how readily the complete air conditioning equipment can be adapted to the conventional installation using the same ducts for supplying both warm and cooled air*






*Cut-away section of the spray chamber of a large central plant installation. Cooling and dehumidifying are accomplished by the use of refrigerated water in the sprays heating and humidifying by using warm water in the spray chamber*

ater, or it may be evidenced by the increased efficiency of an office force.

Fig. 1 shows diagramatically the component parts and their relative arrangement of a large residential central air-conditioning plant.

It will be noted that the central plant is provided with a fresh air inlet. This is necessary because air-conditioning plants must also ventilate the enclosure which it serves. Without ventilation, smoke, body and food odors would accumulate and become unbearable to the occupant, even though the air might be correct as to temperature and humidity.

Ventilation, however, does not mean that all the air circulated is fresh air drawn from the outside. Such a procedure in either hot or cold weather would be extremely wasteful. In theater work at least 10 cu.ft. per min. of fresh air is taken into the building per occupant, while about 30 cu.ft. per min. is actually delivered to the auditorium per person. This means that 20 cu.ft. per min. of the air is recirculated after, of course, being reconditioned for temperature and humidity. An exception to this rule of recirculation is in the case of kitchens or laboratories where exhaust systems not integral with the central air-conditioning system are employed. There are certain days in the spring and fall, and also on mild summer nights, when the outside air is at the proper temperature and humidity to be suitable for delivery into the area, in which case great quantities of the fresh air can be used to advantage.

Air filters are important units in the air-conditioning system. Outside air is necessary for ventilation, but at the same time, this air is likely to be filled with dust particles which must be separated out. A major advantage of an air-conditioned building is that all windows of the structure can be closed, keeping out street dust and cutting down on cleaning services, so it would be folly to introduce anything but clean air into a conditioning system.

Air washers regulate the humidity of the air. They are usually constructed of sheet metal and equipped with a series of sprays, breaking the water up in fine particles to insure its intimate contact with the air passing through the chamber. In the outlet end of the washer is placed a spray eliminator to keep unabsorbed particles of water from being carried on into the system. A cold water spray will decrease the humidity of the air, while an increased humidity can be obtained by circulating warm water. The cold water needed for dehumidification can either be supplied by mechanical refrig-

eration or by the melting of ice. An exception to this is the localities which are fortunate enough to have a supply of cold well water which can be used without artificial refrigeration.

Artificial refrigeration is sometimes supplied to the water in a remote tank and circulated through the washer sprays by a pump. Other times the refrigerating coils are placed directly in the washer in the path of the air stream, the water spray depending upon them. For heating the spray water steam heating coils can be immersed in the washer pen. Other times it is more desirable to heat the water by a separate water heater.

The air heaters are located beyond the air washer and consist of a group of finned coils or cast iron sections designed to present a large heating surface in a relatively small space. Heat can be supplied to these coils by any conventional steam system, or by the circulation of hot water. In one type of conditioning system, called the "split system," the heating requirements of the building are taken care of by individual units located throughout the building, leaving the air-conditioning system to take care of the humidity conditions only.

The fans used for the circulation of the air are of the pressure type to compensate for the frictional resistance set up in the duct work distributing the air to the conditioned spaces. On comfort installations, in particular, the noise of operation of the plant is of vital importance. For this reason special type fans are used, rotating at relatively slow speed, and the duct system is liberally designed to eliminate any vibration which might be set up by the air traveling at a high velocity. Even with these precautions, it is necessary at times to install sound traps to keep operating noises from being carried through the system. On some of the larger installations the complication of air distribution can be greatly eliminated by the use of several air washers throughout the building. In this case, each of the air washers will take care of a section of the building, the cold water for dehumidification being supplied from a centrally located cooling plant.

With the central plant system the important thing to remember is that it is somewhat more complicated than the unit system as far as installation is concerned, but that it is really more simple to operate and maintain on the large installations, as it is readily made automatic, and is surprisingly free from operating difficulties. Also, the operating efficiency of this type of plant, in most cases, is greater when compared with a similar size plant using the unit system.

Central type plants are often sold through the purchaser's architect or engineer. The reason for this is apparent, since central plants are generally installed in new buildings, and air-conditioning facilities have to be planned for along with the rest of the building details. If a central plant is to be installed in an existing building, building changes are often necessary to accommodate the duct system.

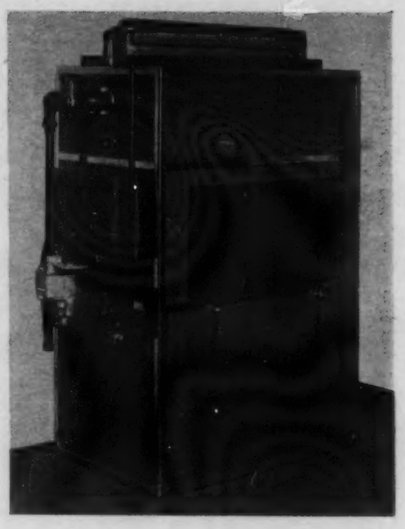
One exception to this rule is in the case of a restaurant, or other type of building already equipped with a hot air heating and ventilating system using forced air circulation. Even in this case considerable caution should be taken to see that the existing ducts and air-circulating system are proper for handling air of a conditioning plant, as many more problems are involved in introducing cold air to a space than in the ordinary ventilating system circulating large quantities of warm air or air close to the temperature of the room.

▼

# Market Possibilities

WHAT benefits for the electrical industry will result from the public acceptance of air conditioning? This is the logical question and one which at present must be answered by an analysis of the market itself. Because air conditioning is relatively new, factual data are not available. However, the following facts, based on conservative figures and estimates, produce an impressive total of business which can be expected with the wider adoption of this latest electrical application.

Air-conditioning manufacturers estimate that 20 per cent of the 2,500,000 residential customers in the eleven Western states are logical prospects for some form of air-conditioning equipment within the next five years. This group of 500,000 homes represents a conservative estimate of those having sufficient purchasing power to invest $200 or more in the comfort and convenience that air conditioning affords.



*Small central plant unit which is applicable to furnace installations in large homes or small buildings*

By segregating this group into smaller sections, the assumption is made that 50 per cent can afford installations averaging $250; 25 per cent are estimated to be prospects for installations averaging $500; 12½ per cent for $1,500 installations and the remaining 12½ per cent for installations averaging $2,500. On this basis the gross volume of business would be:

| | | | |
|---|---|---|---|
| 250,000 | installations @ | $ 250 | $ 62,500,000 |
| 125,000 | installations @ | 500 | 62,500,000 |
| 62,500 | installations @ | 1,500 | 93,750,000 |
| 62,500 | installations @ | 2,500 | 156,250,000 |
| | | | $375,000,000 |

On the preceding four classifications the dollar volume represented can be broken down as in Table I.

Similarly, if 10 per cent of the 250,000 industrial power consumers can be considered prospects for air-conditioning installations, which would average roughly $5,000 each, there is an additional volume of $120,000,000 divided into $12,000,000 for sales expense, $42,000,000 for installation and $66,000,000 for apparatus.

For the utility there accrues a permanent benefit in the form of increased annual revenue—just how much will be appreciated by the following analysis of use.

Naturally, the equipment represented in each of the price classifications arbitrarily assigned will vary with conditions. The $250 class usually will be installed in conjunction with the conventional furnace installation and may be a fan and filter, or air washer and fan, and represent only from a sixth to one-half horsepower connected load. The $500 classification represents a self-contained cabinet unit or similar instal-

**Table I—Volume of Air Conditioning Market**

| | Selling | Installation | Apparatus |
|---|---|---|---|
| $ 250 classification | $12,500,000 | $18,750,000 | $31,250,000 |
| 500 " | 12,500,000 | 18,750,000 | 31,250,000 |
| 1,500 " | 18,750,000 | 28,100,000 | 46,875,000 |
| 2,500 " | 31,250,000 | 46,750,000 | 78,125,000 |
| Total | 75,000,000 | 112,350,000 | 187,500,000 |

**Table II—Revenue From Air Conditioning Installations**

| | $250 Group | $500 Group | $1,500 Group | $2,500 Group | Industrial |
|---|---|---|---|---|---|
| Number | 250,000 | 125,000 | 62,500 | 62,500 | 25,000 |
| Average hp. | ½ | ¾ | 2 | 5 | 15 |
| Annual hrs. use | 900 | 1,800 | 1,800 | 1,800 | 2,400 |
| Rate c/kw.-hr. | 1½ | 1 | 1 | 1 | 1 |
| Revenue | $840,000 | $1,262,500 | $1,680,000 | $4,200,000 | $6,700,000 |

# Sales Effort

**Sales effort, to be fruitful, cannot be spasmodic. Consistent plugging away at the job of increasing the scope of electrical service in California is the one and only way of keeping apace with and ahead of the times.**

**Things are on the move. The industry's share of the customer's dollar will be determined by the degree of thought and energy devoted to sales effort.**

*There is a market for what we have to offer.*
*Let's make it possible for the consumer to say "yes."*

Edison

**Southern California Edison Company Ltd.**

lation involving from one-half to one horsepower. The $1,500 classification represents equipment for heating, cooling and humidity correction by means of two or three cabinet-type units served from a central cooling and heating plant and has a connected load of one to three horsepower. The $2,500 group, including larger multiple unit installations and the central plant systems, will average above five horsepower connected load. In terms of annual revenue each of the classifications will yield the amounts shown in Table II.

Aggregate total annual revenue—$14,682,500, represents a connected load of 990,000 hp.

For the electrical contractor and dealer, air conditioning means both participation in the profits from selling this $375,000,000 potential market and a substantial proportion of the $155,000,000 installation costs. Every installation requires one or more new electrical circuits and often the reinforcement of the existing circuits in the building—an opportunity to sell wire, conduit and switches. For new buildings and homes, provision should be made for the future installation.

For the electrical jobber, air conditioning means increased volume on wiring supplies and schedule material.

For the electrical manufacturer, air conditioning equipment and the necessary materials for installation mean added volume on wiring material, control and motor lines. In addition, the increased load added to operating systems will be reflected in increased demand for major control apparatus.

Every branch of the electrical industry will profit from air conditioning sales. The manufacturers and dealers of that equipment, of necessity, must bear the brunt of actual selling. It is in the promotional work on air conditioning that the electrical industry can be a most important ally. Neither will such promotional work be philanthropic, as the bonus has been worked out in dollars and cents in preceding paragraphs. Not only should the electrical industry cooperate in selling the idea of air conditioning to the public, but also every member of the industry should be familiar with the fundamentals of its application. While the commercial departments of the utilities will include promotion and even direct sales as a part of their load-building program, other members of the industry can promote a rapid development of air-conditioning load by being able to recognize a prospect for this new convenience and supplying the necessary information to the front-line salesmen.

The problem of the electrical industry is to build load quickly. Air conditioning is a real opportunity to do this—an opportunity also to render real public service in which everyone should participate.

▼

## *Store Door Display Room*

FILLING the recognized need of taking the merchandise to the dealer in such a manner that it is easily demonstratable, the Cronin Distributing, Inc., of Portland, has constructed a unique display car to be used by salesmen in covering the small communities in Oregon and southern Washington. The car carries a display of Leonard refrigerators, Electrochef ranges, Voss washers and Crosley radios. Designed by A. M. Cronin, Jr., president of the company, and built on a General Motors truck chassis, the display is 16 ft. long, 7 ft. wide and 6 ft. 2 in. in height. The entrance is at the front end of the car and there is a rear exit equipped with special steps which drop down so that, upon occasion, the car can be used as a display room for the public. In some of the smaller communities as many as 500 persons have passed through the car in a single evening when it has been parked in front of a dealer establishment. The car also has been used for demonstrations right at the curbstones of dealers' prospects. So the appliances may be shown in actual operation, the car is wired for 110 volts and has a roll of extension cord attached.

## Many Will Try Rentals

DEFINITE interest in the revenue possibilities of range and water heater rentals is developing among Pacific Coast power companies. So far only one utility organization, Turlock Irrigation District, has undertaken this most recent new business development program.

According to C. E. Plummer, superintendent, rentals of electric ranges and wiring are being offered to good risk customers of the district in a special one-month offer, advertised only by means of a small classified ad. Originally discussed in connection with water heaters as long as a year ago, the plan went into effect in April and, Mr. Plummer states, if it works out successfully with ranges, it will be extended to water heaters.

The district cannot give free wiring to range purchasers as many utilities are doing because the retail store has to be self-supporting without compensation for load increases. The district already has 1,800 ranges connected to its lines, with a saturation of approximately 40 per cent. Sales, however, have dropped very materially, and contact with customers brought forth the fact that many preferred to use electricity but did not feel able to make the outlay necessary to purchase wiring and range now. Rental charge is $1.60 per month.

"Realizing that there are many evils attached to rentals, as well as benefits," said Mr. Plummer, "we are proceeding very cautiously. We do not wish to place any great number of ranges at any one time. We will investigate our customer's credit thoroughly and deal only with those whom we feel are good risks."

One power company has ordered 50 ranges with which it is quietly making a test of the possibilities of range rentals in various sections of its territory. Its basic rental charge will be $2 per month with no charge for installation. If within two years the customer desires to purchase a new range, a credit of 75 per cent of the rental paid in will be allowed on the purchase price. The customer, if he purchases, will be charged with 75 per cent of the wiring.

Another system is flirting with the idea of renting 1,000 ranges with installation to be done by its own line crews which are on a short hour week at the present time. Still another company with some 2,000 homes on its system with range wiring provided as a result of Red Seal activity or with ranges having been displaced by other fuels or repossessed, is making an intensive study of the range rental idea.

Several companies are working on the idea of renting water heaters. British Columbia Electric Railway Co., Ltd. is continuing with its policy of giving away water heaters to consumers who have ranges installed.

# ★ Range Rentals! ★

***There were "ifs, ands, and buts" about renting ranges until Electromaster started producing FACTS, and far-sighted utilities such as Hartford Electric Light Co. turned theory into successful practice.***

If you want more domestic load—*profitably*—here is your answer. The pioneering work is done. The result of months of study, research work, and practical application by Electromaster is boiled down into three reports. We shall be glad to send them to any utility executive.

*This is the Rental Range*

## THE WALDORF

1. A big, expensive-looking range; buffet type with full-size oven.
2. Quantity-production in this one model permits Low Price to Utilities.
3. Minimum Service Requirements. *This range was engineered for rental purposes.*
4. The public *wants* this range—as evidenced by immediate response wherever introduced. In seven localities, more Waldorfs were rented in one month than the previous year's total range sales.

**C O U P O N**

ELECTROMASTER INC., 1795 E. ATWATER ST., DETROIT

Gentlemen: Please send me complete information regarding the Waldorf Range and the Electromaster Rental Plan.

*Name*_____

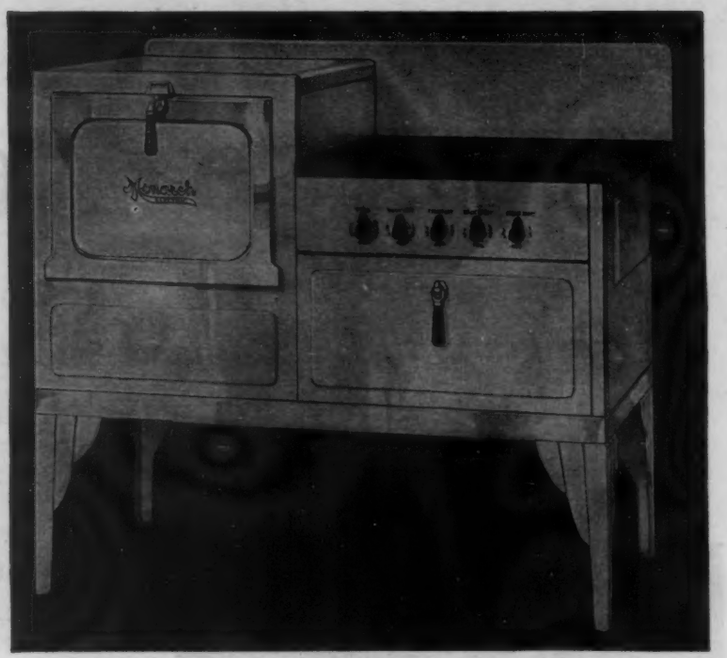
*Company*_____

*Title*_____

*Address*_____

**ELECTROMASTER INC. · DETROIT**

# Monarch *provides* SPEED *and* ECONOMY



*Generous in capacity . . . Ultra modern in design . . .*
*Exceptionally reasonable in price*

**Model 17F,** a range of outstanding merit in every respect. 17-inch oven protected with vitreous enamel and heavily insulated with rock wool. Automatic oven temperature control of special Monarch design which does away with the relay. Has illuminated dial.

Cooking top of stain-proof marbleized green porcelain, with four surface units. Below, a large utility drawer. Electric timer-clock control, which never needs winding, offered optional.

All enamel, of course, and made in your choice of white, Nile-Green or Ivory-Tan.

# *Through* EXCLUSIVE Surface Unit Design ●

The MONARCH "Hi-Efficiency" Surface Unit quickly disposes of that time-worn question—"Isn't electric cooking slower and more expensive than my present method?"

After all, there used to be some grounds for the question. But a simple explanation—and a showing of the Monarch construction sample settles that matter in short order.

Too little attention has been paid to surface cooking in selling Electric Ranges. But these Monarch features give you a sure-fire sales argument. The SPEED of the "open" type, plus the heat-retaining properties of the "closed" unit! The utmost economy both of time and Electricity!

These are the features that make this Monarch "Hi-Efficiency" unit the outstanding construction in the field:

**1.** Heating element of the highest grade resistance wire, withstanding 2000 degrees F. is recessed in porcelain block. Even spacing, "bridges" and expansion slots prevent "hot spots" and buckling.

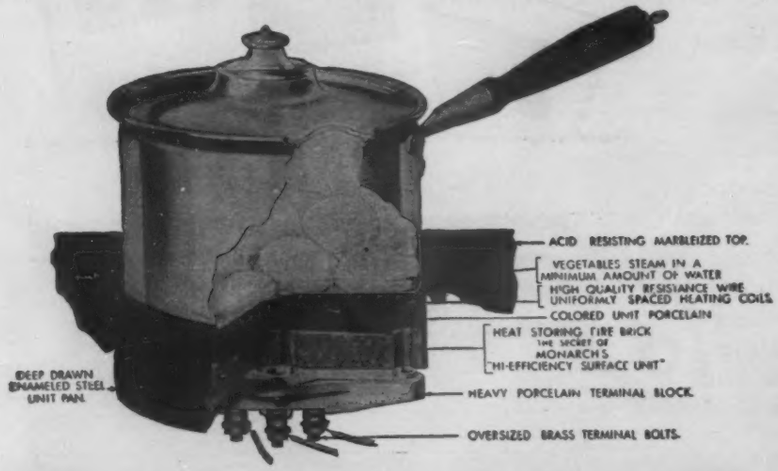
**2.** Quick heating and economy are promoted by preventing downward radiation with the Paramount insulating block, one inch thick. Stored heat keeps liquids boiling 15 to 20 minutes after current is turned off.

**3.** Entire unit encased in porcelain rust proof enamel container.

**4.** The heavy terminal connections are made outside of unit container so they remain cool and avoid corroding and burning off of wires.

**5.** The new element wire insures extreme durability with low maintenance cost.

**6.** Unit bricks are tinted green to harmonize with range top effecting permanent pleasing appearance.


ACID RESISTING MARBLEIZED TOP.
VEGETABLES STEAM IN A MINIMUM AMOUNT OF WATER
HIGH QUALITY RESISTANCE WIRE UNIFORMLY SPACED HEATING COILS
COLORED UNIT PORCELAIN
HEAT STORING FIRE BRICK THE SECRET OF MONARCH'S "HI-EFFICIENCY SURFACE UNIT"
DEEP DRAWN ENAMELED STEEL UNIT PAN.
HEAVY PORCELAIN TERMINAL BLOCK.
OVERSIZED BRASS TERMINAL BOLTS.

In "selling" the unit, do not overlook the top itself. Rich variegated dark green, porcelain enameled by our "Dura-Glaz" process-acid resisting to prevent noticeable stains—and handsome in contrast to the white or delicate tinted enamel range body. Illustrated description of the entire line with new low prices await your request. Why not write for them today?

**MALLEABLE IRON RANGE CO.**
3114 Lake Street, Beaver Dam, Wisconsin

**Central Station Representatives:** Clyde L. Chamblin Co., 639 Mission Street, San Francisco, California
**Dealer Representative:** Glenn L. Brown, 3515 Kempton Place, Oakland, California
**Western Manager:** G. A. Lieser, 1218 17th Avenue North, Seattle, Washington

## Electrified Hospital Stood the Quake

When the quake shook Long Beach early this year and hospital care was needed by many in the stricken area, the Seaside Hospital, at Long Beach, undamaged because well built, found that its judgment was more than vindicated. Just a few months previously it had changed over all of its remaining cooking equipment from gas to electricity, and hence never found itself without facilities to feed the many who called upon it for assistance.

Three years ago the first cooking equipment to be electrified was a two-deck roasting oven, two stock kettles and a steam cooker. Early this year it added a 16 kw. range, a deep fry kettle, a two-deck bake oven, a conveyor type toaster and a 54-in. griddle. Other fuels went out completely. The cooking equipment totals 80.5 kw. With a power load of 31 motors totaling 87 hp., an X-ray therapy load of 18 kw., and a lighting load of 140 kw., the total kw.-hr. consumed never has exceeded 27,200, most often has been around 25,000, of which the cooking takes about 11,000. The average of meals served per month has been 31,500, thus using about .4 kw.-hr. per meal or about ½ cent per meal.

Heavy Duty Salesman H. E. Welsh of Southern California Edison Co., Ltd., sold the job and it has proved so satisfactory that from it many others have resulted.

*Range and bake oven at Seaside Hospital just added to complete its complete kitchen electrification*

▼

¶ **Menus Broadcast**—Featuring a booklet entitled "Best Meals," containing menus for a week, The George Belsey Co., Ltd., General Electrical appliance distributors for southern California, is sponsoring a series of two radio broadcasts weekly as part of its sales promotional program. The 15-min. radio periods feature the company's home economist who explains the menus printed in the booklet. Approximately 6,500 booklets are being distributed weekly through the retail sales rooms of the Belsey organization together with General Electric appliance dealers. The Belsey company are the originators of this plan which also is being employed by the Electric Refrigeration Bureau of Northern California.

▼

¶ **Employees Buy**—"Use it yourself" is now the slogan of 107 employees of the Los Angeles Bureau of Power and Light who purchased electric ranges in a 60-day campaign recently conducted by that organization. Inducement to purchase was an offer for free installation during the campaign. All sales were handled through range distributors in the Los Angeles area.

▼

¶ **Speed Up Ranges**—A range replacement unit campaign, designed to modernize and bring up to date old electric ranges, is being planned by the San Joaquin Light & Power Corp. and its subsidiary, the Midland Counties Public Service Co.

¶ **Change Name**—Action will be taken by the Radio Trade Assn. of Southern California at an early meeting on a proposal to change the name of the organization to the Radio, Refrigeration & Electric Appliance Assn. of Southern California. Expansion of the interests of the distributor and dealer members of the organization to include refrigeration and other electrical appliances as well as radio in their sales activities is responsible for the proposal.

▼

¶ **5-Cents**—Just how big a nickel is in electric service received through the medium of electric appliances is made the feature of both a window display and a floor exhibit in all of the P. G. and E. offices this month for a two week period. The displays are held cooperatively with the dealers in the appliances in each city. Backgrounds and cards against which each appliance or group of small appliances are displayed, emphasize the service each will give for a nickel's worth of kilowatt-hours. Frank Bevan, display manager, is responsible.

▼

¶ **Gay Nineties**—Washboard days of the 1890's, and todays prices at just about the same level, were featured in a spring drive on washers and wringer post ironers (Thor) advertised by the Washington Water Power Co. at $77. Cartoons in wood cut style, semi-humorous copy, and an accompanying salesmen's campaign conducted as a "bike race," made R. B. McElroy, merchandise sales manager and his crew successful despite the bank holiday in which it started.

▼

¶ **Maytag Pacific Intermountain Co.**, of which T. A. Moler is president, is rapidly moving toward the eventual elimination of all its owned retail outlets, and going to the outside dealer with the whole line. This move is being facilitated by the recent introduction of the new, low-priced Model 10 washer, which is to be marketed exclusively through dealers. Dealers throughout the territory are being secured on this model, as an introductory step. In Portland and Seattle, large dealers have been established, who will take the whole line at once. In Portland, it is the Meier & Frank Co. department store, which has sold a carload of the new Model 10 alone, in the last 60 days. In Seattle the line has been given to Hopper-Kelly Co., a large music house. Hogg Bros. of Oregon City, with large stores in Salem and Tillamook, also have the line.

▼

¶ **Campaigns Lighting**—Southern Sierras Power Co. is conducting a lighting campaign featuring an Ivanhoe reflector-type unit and a 100-watt lamp which are being sold to consumers on four months' terms at $2. The combination also may be purchased for $1.95 cash. Approximately 125 of the units are being sold each week.

▼

¶ **Cookers By Mail**—Special cooperative sales activity of the Southern California Edison Co. during July will be a cooperative direct-mail campaign on Everhot electric cooker pots. A double post card, the return half of which constitutes an order, is being mailed to domestic electric consumers on the Edison Co. lines. The card announces that the cooker may be purchased from the Southern California Edison Co. or any electrical dealer for $9.95 cash or $10.50 on terms. Dealers may sell for cash or may take an order for a term sale on blanks furnished by the company. In the latter case the dealer turns the order over to the Edison Co. and receives a commission of $1 for the sale. Newspapers throughout the company's territory will announce the campaign. Another feature of the campaign is the provision for employee cooperation.

▼

¶ **Prices Up**—Kelvinator refrigerator prices were increased June 28 in line with an announcement by George W. Mason, president of Kelvinator Corp. Increasing prices of raw materials and the generally better business tone are reasons given for the advance.

# Sell the Outdoors » » »

## *Lighting Brings—*

**1: *RELAXATION*—or exercise in the garden at night—makes it an OUTDOOR LIVING ROOM.**

**2: *PROTECTION*—from prowlers, or for the folks of the house when they have work to do or chores to attend to around the place after dark.**

**3: *SPORT*—extra hours in the cool of the day for playing or watching others play all kinds of outdoor games.**

**4: *BEAUTY*—garden parties, where colored lighting, properly used, creates a romantic, decorative setting that makes any occasion more successful.**

**5: *SALE*—spotlights businesses, helps to rent houses and buildings, attracts night trade—**

***AND* makes business for the**

**—contractor**
**—wholesaler**
**—manufacturer**
**—utility**

IF it has nothing else, the West has a great heritage in the out-of-doors, open spaces wide enough for homes with gardens and cities with ample playground facilities. With few exception the cities of the West have been built so that air and space and sunlight are given a fair chance. With few exceptions, too, the nights are warm during the entire spring, summer and fall. The people of the West are great lovers of the out-doors, great sportsmen, and most everyone likes to play as well as to watch the games familiar to us all.

Electricity—and lighting in particular, offers these out-of-doors people of the West a few more hours of play at negligible cost.

It offers extra time to do gardening, odd jobs about the house, repairing and painting, in the early evening hours.

It offers protection, both from needless stumbling about in the dark for those of the house, and against prowlers, who hide under cover of gloom and darkness.

Electricity brings color and beauty such as is impossible by day to nighttime garden festivals, parties, or simply to the garden itself, to be shown off to visitors who drop in of an evening. Most gardens are never seen by anyone but the gardener. Lighting makes them belong to the whole family and its friends.

In these pages are accounts of how Westerners of imagination and good sense have sold not lighting but the out-of-doors, (incidentally lighted of course) to other Westerners who love their homes, their gardens, their outdoor sports, their friends.

Sell the out-of-doors—at night. Lighting just has to be wrapped up in the same bundle.

▼

### Denver's Sundodgers

NIGHT athletics occupy the floodlight in Denver. Following closely in the wake of major illuminating jobs at Denver University football stadium and Merchants (Western League) baseball park, "Kittyball" diamonds in various parts of the city have been placed under high-wattage incandescent lamps. Tennis courts and an outdoor hockey rink in municipal parks are now lighted too.

DANA W. ROWTEN

*whose own athletic training has been turned to enthusiastic selling of sports lighting.*

So great is public enthusiasm over night sports that one department at Public Service Co. of Colorado devotes a considerable part of its time to this particular type of business. Dana W. Rowten, former athlete at Colorado Agricultural college, is in charge. His recent efforts have resulted in eight installations which more than satisfy softball enthusiasts and add materially to the load on power lines. Two more "kittyball" field illuminating jobs are in process of completion. Several others will probably be installed before Fall.

Rowten works in conjunction with

*Last year in the territory of the San Joaquin Light & Power Corp. and Midland Counties Public Service Co., several hundred small portable aluminum floodlights were sold to customers for garden lighting, commercial lighting, decorative lighting. The number of lighted sports fields in the San Joaquin valley is the number of communities located there. Gardens have truly become outdoor living rooms, as in this humble yet lovely instance, pictured here. The green of the grass and foliage, the color of the flowers, stands out in brilliant contrast to the night. Placed over at the sides of the "living area," the insects that are attracted to light flock near the units themselves and leave the tables with food, and the people around them, strictly alone. This year, another similar lighting unit campaign is under full sway right now.*

*Sixteen thousand spectators witnessed the Rocky Mountain region's first football contest under floodlights. The game, between Denver University and Regis College, would ordinarily have attracted a small gate, but the novelty of night athletics brought out the largest crowd ever assembled at a Rocky Mountain division gridiron battle. Part of the 72 kw. floodlighting installation and section of the Denver University football stadium are shown in the photograph.*

manufacturers' representatives whose headquarters are in Denver. He specifies to prospective customers the wattage and performance necessary for adequate lighting; then he impartially recommends General Electric, Benjamin or Pyle-National equipment as suitable for the purpose. After the customer has made his choice, the manufacturer's agent is invited to display his wares. Or, if the customer is unable to decide, demonstrations of all three products are arranged.

Rowten's enthusiasms are contagious. He talks the athlete's language, having been one himself, and maintaining an up-to-date interest in sports of all kinds. He understands their problems; also the problems of management. An instance of his ability to meet difficulties that arise from the viewpoint of players and management alike is shown by his floodlighting design at Elitch's Gardens, a popular amusement park on the outskirts of Denver.

The softball field is used frequently for regulation daytime baseball. In order to provide illumination for kittyball contests without spoiling the diamond for its other purpose, poles were planted 240 ft. from home plate. Then, in order that fly balls may be within range of vision at all times, "ceiling lights" are provided. These ceiling lights are mounted ten feet above the ground—on the 38 ft. outfield poles—and illumination directed upward at a 45 deg. angle by means of a spread lens, screen and louvers. Such arrangement prevents glare from striking either players or spectators, and the ball is never lost against the black background of night sky.

## *Use It Yourself*

**Nothing convinces others like your own FAITH in your own PRODUCT—DEMONSTRATED by actual use**

Rowten compiled some interesting figures to demonstrate the value of floodlighting for revenue purposes:

**One 1,000-watt unit uses current 1.2 times that drawn by an electric kitchen range; 3.6 times that of an electric refrigerator; 3.2 times the amount drawn by the average residence for lighting purposes. Since the average kittyball illuminating installation involves a 24 kw. connected load—3,000 watts mounted on each of eight poles—the value of this type of business becomes apparent.**

Public Service Co. of Colorado revenue from floodlighting in 1932 was equal to revenue derived from 3,976 electric ironers or 1,027 electric refrigerators or 7,100 electric irons.

## Rent Garden Party Lighting

Electrical dealers can, if they have a mind to, work up a nice, profitable business in renting illumination fixtures for summer evening lawn parties, says W. E. Nance, one of the owners of the Redlands (Calif.) Electric Co. All that is necessary is equipment, a sense of artistry in illumination arrangements and a little salesmanship.

In so far as equipment is concerned, the company has six 1,000-watt reflectors and sufficient cord to string them to points hundreds of feet from the source of electricity, usually an outlet in or near the house.

"It is not merely a question of illuminating the scene of festivities that the dealer must solve," Nance explained, "but it is the question of proper placing of the equipment so that the light will be well diffused and where no glare will strike the guests' eyes. Also, he must plan to string the wire where it will not trip a guest.

"Furthermore, there is the question of capacity, and arrangement whereby the hostess will have no difficulty turning the lights on and off; and equipment that is reliable.

"Another factor is the color of the illumination; some hostesses want color. Giving color is no trick at all, but the average hostess does not realize what effects on clothing and other features of the party the color of the illumination will have. So the electrician must understand these points and advise the hostess against color illumination that may spoil the appearance of her gown, as well as the gowns of many of her guests.

"We have found that where the guests are likely to wear pastel shades, an amethyst light is the safest to use.

*About Folks in the*

# Selling Game

¶ G. B. Schuyler, vice-president and general manager, Apex-Rotarex Mfg. Co., Oakland, is leaving about June 20 for a six weeks' business trip throughout the Southern and Middle Western territory.

▼

¶ W. E. Cranston, Jr., vice-president of the Thermador Electrical Mfg. Co. of Los Angeles, has left for an extended business trip covering the Eastern states.

▼

¶ C. Allen Hore, formerly in business for himself at Mill Bay, B.C., has been appointed electric refrigerator sales and service manager for Thomas Plimley Ltd., Victoria, B.C., Vancouver Island distributors for Frigidaire.

▼

¶ Webster Electric Co., of Calgary, Alta, Canada, of which Eric Webster is proprietor, has moved to larger premises in order to enlarge the retail display added to the firm's business of contracting in 1926.

▼

¶ Charlie R. Musladin, well known in both Northwest and San Francisco bay area electrical circles, representative of Chicago Flexible Shaft Co., has been elected vice-president of the Seattle Pot and Kettle Club, to succeed A. J. Martin, buyer and manager of the housewares department, Rhodes Bros. department store, who was made president.

▼

¶ Fighting Harry Crowe, proprietor of Crowe Hardware and Electric Works, Tulare, Calif., was appointed president of the California Retail Hardware and Implement Association, to succeed J. A. Curnow, deceased. Harry Crowe is an ardent champion of the dealer in trade disputes, an orator and has always been a dominant figure in the hardware trade. He has been vice-president of the association.

▼

¶ Fada Radio & Electric Corp. has placed specialty salesmen in the field for trade contacts; among these are L. N. Bushnell, in San Francisco; Bert Scouler, in Los Angeles; and S. R. Denham, in Sacramento, Calif.

▼

¶ W. E. Webber, formerly general salesman for General Electric Supply Corp. at Los Angeles, now is operating the Wholesale Salvage Co. at 1806 So. Main St., in that city. Mr. Webber specializes in distress electrical merchandise, but he also handles all types of merchandise.

## Bakewell Heads Denver League

GEORGE Bakewell, Jr., has been appointed manager of the Electrical League of Colorado. He succeeds John J. Cooper whose resignation became effective June 1. This announcement was made by Charles S. Newell, president of the League, following a recent executive meeting. In taking over Electrical League leadership, Bakewell resumes duties he relinquished March 1, 1932, when he was succeeded by Cooper. During the intervening fifteen months he was the League's field representative. He will combine field activities with executive responsibilities.

Cooper plans to remain within the electrical industry and continue an active interest in League affairs, he said.

Bakewell's affiliation with Electrical League of Colorado began in 1924 when he became field representative. August 1, 1926, he was appointed manager, a position he held until last year. Returning to the chair he vacated, Bakewell has plunged energetically into the preliminary work incidental to Electrical Week which is scheduled for the second week in October—a joint undertaking sponsored by the Electrical League and Rocky Mountain Electrical Association.

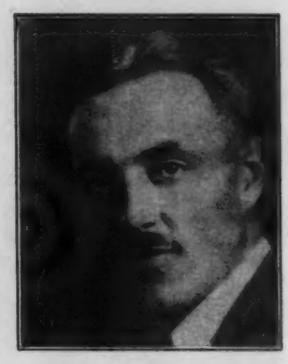
▼

## Harry Thomas Goes Radio

HARRY M. Thomas, best known for his management of the P. C. E. A. convention at Del Monte under Al C. Joy in 1932, has become associated with Frank Wright and Associates, radio broadcast advertising representatives and agency, as San Francisco manager. This firm is handling the account of the Northern California Electric Refrigeration Bureau, now on the air.

A graduate of Oakland Technical High, selftrained in the University of California extension division electrical engineering courses, with four years as 1st lieutenant in the 143d Field Artillery in the United States Army, two during the war and two years after it, Mr. Thomas first became connected with the electrical industry in 1922 as a manufacturers' representative handling engineering lines. He joined the Electric Material Co. in 1924, with which he was connected until 1929. During this time he also operated as manufacturers' representative under his own name for certain lines. Joining with Clyde Chamblin, he formed the Chamblin-Thomas Co. in 1930. The latter firm handled merchandising lines for manufacturers in the West. Some months ago Mr. Thomas turned over his interests in the latter company to Clyde Chamblin and has now entered the radio advertising field. Gifted with showmanship and with considerable dramatic experience, Harry Thomas brings to his new endeavor a temperament particularly fitted for this type of activity.

HARRY THOMAS



GEORGE BAKEWELL

▼

¶ Gould and Foulks, of Los Angeles, have four completely equipped trucks, traveling in southern California, prepared to repair any and all makes of home appliance. They work from house to house, and have done esepecially well in the replacement of worn or burnt out range elements with the new high speed units, (Chromalox). Coast Electric Co., of San Diego, is doing a similar job.

▼

¶ H. W. Diehl, Dinuba, Calif., General Electric dealer, and Freeman Chambliss, Bakersfield, Valley Electrical Supply Co. salesman, were winners in the refrigerator contest which entitled them to a trip to the Chicago exposition. Diehl made 194 per cent of his quota during the campaign. Mr. Chambliss made 48 individual sales of refrigerators worth $10,363. Both expect to go to the exposition together about July 15.

▼

¶ New Electrical Applications—is the title of a talk and demonstration which is arousing much interest in southern California. Worked up by H. C. Rice, Southern California Edison merchandising manager, the show is being put on before service clubs. Over $300 worth of new electrical appliances and equipment, including photo-electric cells and the like is used to demonstrate the new uses to which electricity may be put.

¶ **CLARENCE F. (Sandy) PRATT,** known throughout California for his sponsorship of outdoor Christmas lighting, has announced the formation of the California Refrigerator Co., dealing in electric refrigerators, parts and accessories. Headquarters are at 1077 Mission St., San Francisco. The new organization will deal in household-size used electric refrigerators, surplus stocks and models of refrigerators from dealers, distributors, manufacturers, and will specialize on repair and servicing of household and apartment house units of all makes. In addition, a complete display and stock of refrigerator accessories will be carried, including enamel, glass and porcelain-covered dishes, water bottles and water coolers, rubber trays, egg racks, rubber gliders, air purifiers, defrosters, dehydrators, thermometers, and ice crushers.

¶ **E. P. Pennebaker,** for many years district storekeeper for the Southern Sierras Power Co. at El Centro was recently given the added duties of attending to the merchandising and load building activities of the company in that region when Carl Ernst was transferred to other activities for the company in the northern end of Imperial Valley.

▼

¶ **E. O. Thomas,** whose appointment as general sales manager of the Hurley Machine Co., Chicago, maker of Thor washers and ironers, was announced a few days ago, was formerly stationed at Los Angeles, in charge of all Thor Pacific Coast operations. He was transferred to Chicago a year ago and since that time has been assistant to President Edward N. Hurley, Jr.

▼

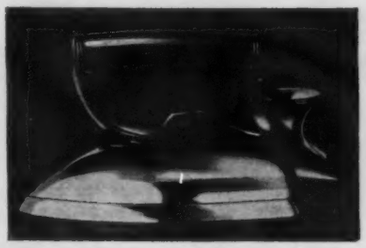
¶ **James H. Cannon,** president of the Cannon Electrical Development Co., Los Angeles, left June 20 as a delegate to the International Rotary Convention in Boston. He will also extend his trip eastward to combine it with his business interests.

▼

¶ **Among Western** appointments of the General Electric Co. to handle its new air conditioning cooling equipment are George T. Bauder Co., San Diego, Calif.; The George Belsey Co., Ltd., Los Angeles, Calif.; B. K. Sweeney, Inc., Denver, Colo.; Valley Electrical Supply Co., Fresno, Calif.

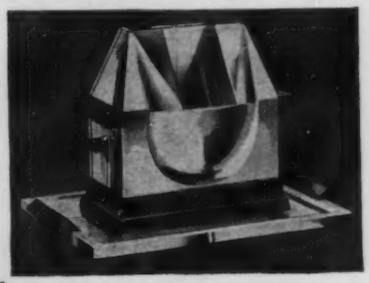
▼ ▼

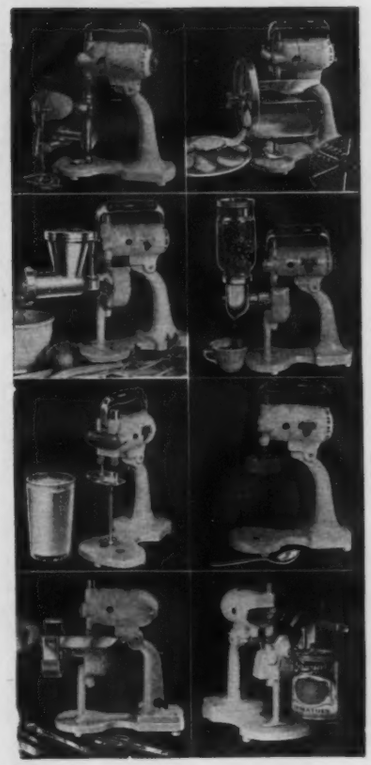
# New Lines *You Can Sell*



### *Ultra Modern*

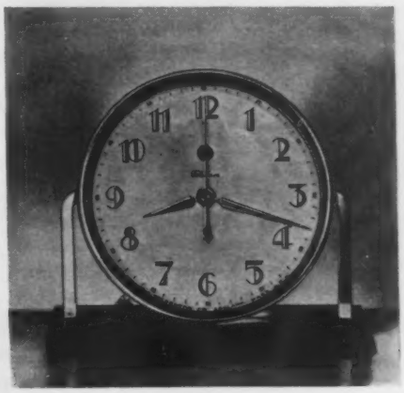
Birtman Electric Co., Chicago, Ill., has produced an ultra-modern automatic electric iron and what is claimed to be the first and only visible toaster on the market. The new electric iron has a ventilated all-bakelite handle and shield. It was designed by a well-known artist and is distinctly modern in appearance. The iron is produced in two models, 6 and 3½ lb. in weight, both with 1,000-watt heating units. The new toaster permits the user actually to watch the progress of the toasting operation. Both sides of the bread are toasted at the same time by indirect or reflected heat. Heat is supplied by coils located in the bottom of the toaster and is reflected to the bread by bright metal surfaces. All metal parts of both iron and toaster are chromium plated.—Electrical West, July, 1933.





### *Versatile*

Chicago Flexible Shaft Co., Chicago, Ill., has announced a series of new attachments for the Sunbeam Mixmaster. One is a potato and vegetable peeler retailing at $3.50. Another is a slicer and shredder attachment with two discs, one for slicing and one for shredding, retailing at $3.50. Other new attachments include a new food chopper and meat grinder ($5.50 west of Denver); coffee grinder ($2.00); drink mixer ($1.50); and silver polisher and buffer complete with a supply of polishing compound (50 cents). —Electrical West, July, 1933.



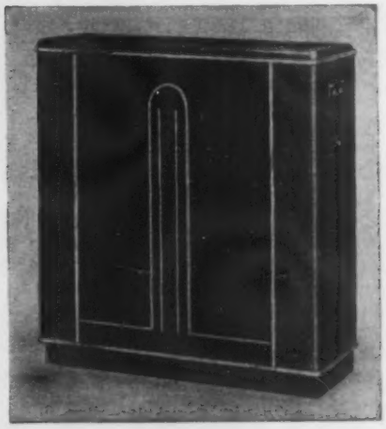
### *Telart*

Three new inexpensive selfstarting Telechron clocks have been announced by the Warren Telechron Co., Ashland, Mass. Two of the models are of modern design and are unique in the Telechron line. One, the Telart, is a metal-frame clock supported by a black Catalin base. It is priced at $5.95. The Daphne has an hexagonal case of molded Cataline and will be available in green, ivory, black, red or rose quartz. It is priced at $3.95. The Newberry is an upright colonial model, available in either mahogany or maple finish. It will retail at $4.95.—Electrical West, July, 1933.

▼

### *Conditioner*

Westinghouse Electric & Mfg. Co. has placed on the market a new unit air conditioner which cools and dehumidifies air in summer, heats and humidifies it in winter, and filters and circulates it at all times. The units are designed for installation under windows or along walls and, where space is limited, a special unit is available for wall or ceiling mounting.—Electrical West, July, 1933.



# The Month
## *Commercial and Sales--*

*No Sacred Cows—*

***There are no exceptions allowed in their own bailiwick to the advice that Hotpoint officials pass along to their dealers. To eliminate all "sacred cows," if any, in their own organization, and to make not only cooking salesmen but electrical cooks out of the San Francisco staff, Mrs. Fern Trumbull Hubbard, home economist, held a cooking class at the G. E. Supply Corporation to which R. E. Tompins, H. A. Cram, Clyde Allen, H. L. Eckenroth, H. C. Gerster and Stanley Gray were put through the menus. No more theory for them. "I use it myself" is the convincing declaration each and every one of them can make to anybody. Can you—?***

*Now They Make It—*

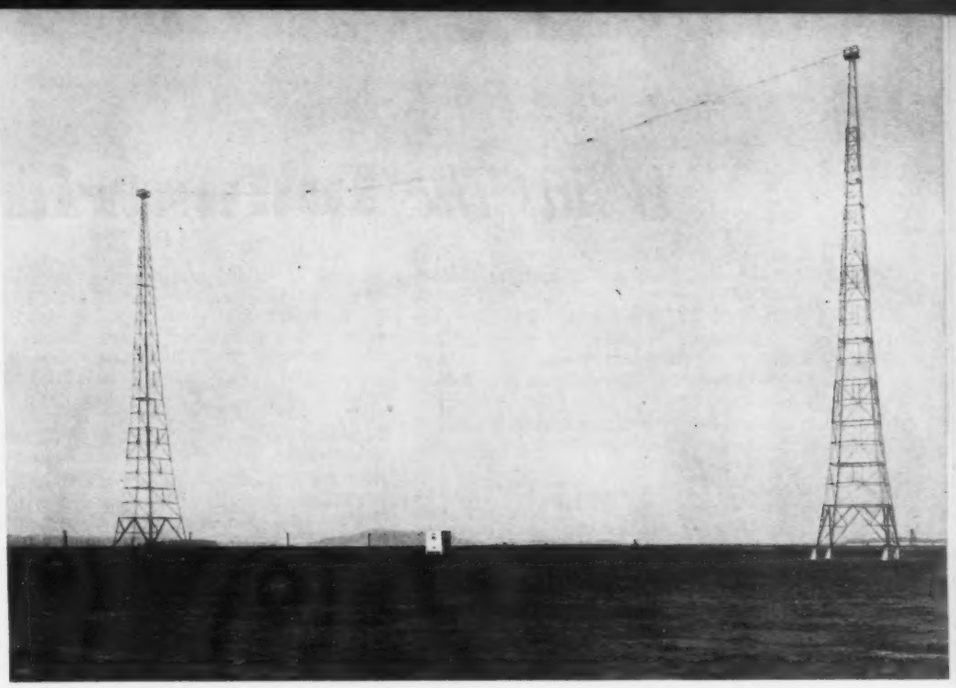
***Los Angeles Chamber of Commerce has been one of the world's best boosters of weather (pardon, climate). Only natural, then, that it should see the big possibilities of manufacturing weather, weather or no. Even the "unusual" occasion can be brought up to par now by means of electricity's newest service to mankind. So southern California gave the public a real exhibition of air conditioning at a show held during the week of May 22. Devices were arranged for display and actual operation. This picture of a portion of the exhibit was taken expressly for Electrical West by Rupert Murray of the Los Angeles Chamber of Commerce, in whose building the exhibit was held***

*For Sundodgers—*

***"Kittyball" is sweeping the West with a lot more sense back of it than the late lamented boom of pee-wee golf. It couldn't have gotten anywhere without the fine jobs of playground lighting that have been installed in all parts of the country. The youth of the West are flocking during the early evening hours to the lighted fields to watch or play spirited soft ball contests between local leagues. This on the left is one of Denver's latest, at Lakeside amusement park, one of eight equipped with lighting in the last year***

# in Pictures

# - *Engineering and Construction*



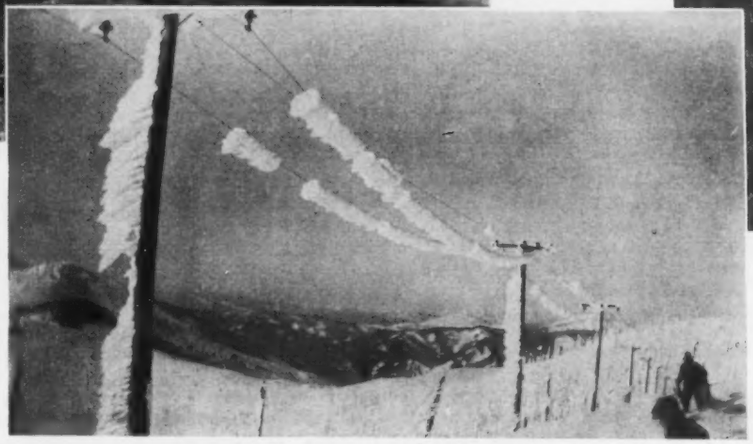
### *Oh Yeah!*

*Bird guards meant nothing in the young lives of this hawk family, whose nest of tumbleweed was found on the cross-arm of a 110-kv. transmission tower on the Kingsburg-Corcoran line of San Joaquin Power by lineman Carl Felps. The bird guards only made the nest firmer. Such is the life of an operating crew. Fortunately for the babies they could not yet reach the hot line.*

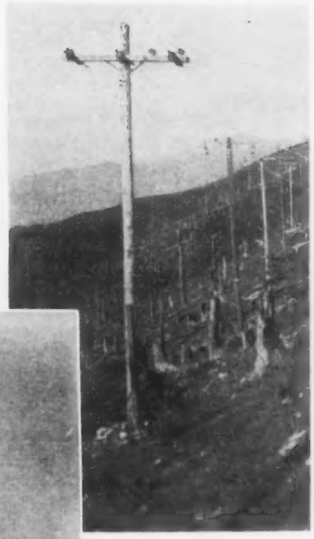
### *KPO*

*On marsh land, below high tide level, KPO radio station's new transmitter, off San Francisco bay, near Belmont, is powered at 50,000 watts. Engineered by J. J. Farrell, of G. E. engineering dept., Schenectady, the installation was made by Enterprise Electric Works of San Francisco. Several miles of copper strip were laid in the ground as a grounding network about the towers and transmitter building. Broadcasting is done in the San Francisco studios of NBC*

### *Line Rebuilt—Made Blizzard Proof*



*Delivering 1,000 kw. to a mine, this 3½ mi., 13-kv. line, along the crest of a 6,000-ft. ridge was rebuilt by Washington Water Power Co. to be blizzard proof. Original No. 2 copper conductors were replaced with 5/16-in. steel wire, the center conductor dead-ended to every pole.*



*Cedar 35-ft. poles, set for 160-ft. spans, are guyed four ways. Pack horses were used to bring material to the job. In winter the line is often heavily loaded with ice as shown*

# *What the* **Industrial Recovery**

## *In a Nutshell —*

—A swift summary of the Act
—Its purpose and primary aim
—Local application right here in the West
—Who to see
—Where to get straight information
—What to do

**Name**—the National Industrial Recovery Act.

**Nickname**—NIRA—with the "i" pronounced as in fight, not "neera," because, as "Business Week" says, that sounds too near like "neera my God to thee."

**Passed**—by both Senate and House of Congress, June 13, 1933; signed by President Roosevelt, June 15.

**President's statement**—"The law I have just signed was passed to put people back to work—to let them buy more of the products of farms and factories and start our business at a living rate again. . . . It seems to me that no business which depends for existence on paying less than living wages to its workers has any right to continue in this country. By 'business' I mean the whole of commerce as well as the whole of industry; by workers I mean all workers—the white collar class as well as the men in overalls; and by living wages I mean more than a bare subsistence level—I mean the wages of decent living. . . . It is a challenge to industry which has long insisted that, given the right to act in unison, it could do much for the general good which has hitherto been unlawful. From today it has that right."

**Administrator**—The President has appointed Hugh Samuel Johnson. He is a Westerner, and a plain spoken, clear thinking, retired U. S. Army Brigadier-General. Born in Kansas, assigned to duty as a Lieutenant to the Presidio in San Francisco in 1904, he took his first big job on April 18, 1906, when he became general quartermaster for the refugee camps after the great earthquake and fire. In 1910 and for three years he was executive officer in charge of Yosemite National Park. During the next three years he earned both A.B. and J.D. degrees from University of California. From then on his career included service with Pershing in Mexico, formulation and administration of the selective draft plan for the American army in the World War; he was a member of the War Industries Board, and in Oct., 1918, took charge of the 8th division at Camp Fremont, again in California.

**Effective**—immediately. The hearings on the first codes are being held in Washington now.

**Copies of the Act**—are available from your local chamber of commerce, the national headquarters of your trade association, the offices of the Department of Commerce, or from the NIRA administration in Washington.

**Interpretations**—There are many excellent summaries, explanations, articles and speeches dealing with the act and its possibilities and consequences. See "Business Week" for June 24. It has an excellent "catechism" on the act. Write Pacific Coast Electrical Bureau for its summary. California State Chamber of Commerce has some excellent material. Write to NIRA for official bulletins. Read the trade press for developments. **Electrical West** will carry news of all important NIRA developments in the electrical industry affecting the West.

**Warning**—Beware of "Associationeers." A number of unemployed lawyers and some agitators are seeking to make capital of this act by trying to start new associations. Join or at least look up and attend the meetings of the established associations in your field. If there is none, get your competitors together and form your own association.

### *Purposes*

**Primary purpose**—to restore American business.

**How**—By making more employment (shorter hours of work, a shorter work week, or spreading existing work by some form of allotment).

—by raising buying power (increased wages and salaries or retaining present salaries for the shorter hours).

—by protecting business from the chiseling which makes both wages at par and a shorter working week impossible under present highly competitive conditions.

—by a gigantic public works program, 3½ billion dollars' worth, with which to start industry off on the new deal.

**By What Means**—Permitting labor to bargain collectively through its own representatives, on matters of hours and minimum wage scales.

—permitting industries and businesses in the same general line to form trade associations in which the hours of labor, the minimum rates of wages, and codes of fair competition can be set up, and if approved, become the law for that industry or group, binding upon both members of the association and those not belonging.

—setting aside the provisions of the anti-trust laws to permit such agreements, providing there is no monopoly.
—by giving trade associations government sanction and putting actual "teeth" into their agreements, by which the outsider who does not want to play the game fairly may be punished by law.

**Socialistic?**—No, since it is not the government, but business itself which must do the job. Business must regulate itself through its own trade associations, by writing fair codes, and by enforcing them, with the backing and legal compulsion of the government. "The initiative in all such matters is expected to come from within the industry itself," states Gen. Johnson in Bulletin No. 2.

### *Local Application*

Each individual and every type of business in the electrical industry will eventually feel the results of this act. How best to take advantage of its provisions and quickly get under way is the present question.

**Employees**—This act includes all forms of labor, both office and manual. Manual crafts as a rule have organizations or unions which are already discussing the provisions set up in the act for participation in agreements with employers as to hours of work and minimum wages or salaries. Unorganized groups, "white collar" or office employees, possibly will be last to be affected, unless they take steps to negotiate with their employers through representatives of their own choosing. Minimum salaries and maximum working hours for them should be adopted in their employer's codes. Even if no negotiation is made, they will have the opportunity to present their case to the administrator when their employer's code is being heard.

**Unionization**—is not necessary, although the provisions of the act probably offer better chance of representation to members of organizations than to individuals without opportunity to attend the hearings on the codes.

**Membership**—must be made easy by unions or organizations of employees, as well as by associations.

**Hours**—Maximum hours should be determined for all classes of work. Each class of work may require different hours, although wherever possible uniform hours for a majority of employees is desirable because it simplifies the code.

**Pay**—Minimum pay must be set for the lowest salaried employee, with minimums for each grade, too, if wanted. No maximum wage will be approved. In other words, there will be no brake upon the extra skillful, or more valuable employee. This is not Russia, with its leveling effect on initiative. It is America still, with its rewards for superior effort.

**Working conditions**—Such conditions as are required for the protection of employees, including pension and retirement provisions, compensation, safety requirements, tools, etc., can be agreed upon by employees and their employers.

* * *

**Contractors**—National Electrical Contractors' Assn. is very active; has a code in preparation. Its local chapters and individual members, where there are no chapters, have been active. In the West, if you are a contractor, get in touch with the nearest center, as follows:

**Denver**—a chapter of the N. E. C. A., with W. A. J. Guscott, president, B. Stiles, secretary. This association has been busy obtaining "proxies," or certificates of representation, by which the N. E. C. A. is appointed representative for the contractors of Colorado, in presenting a code to Washington.

**Salt Lake City**—Here National Executive Committeeman R. R. Reid, of Salt Lake City, and the Salt Lake Electrical Contractors' Association, are likewise in close touch with the national movement. Get in touch with the association secretary.

**Portland**—a chapter of N. E. C. A., with J. R. Tomlinson, secretary, is in charge of organizing Oregon contrac-

# Act Means *to You*

—What is being done in your group already
—How to set up a code
—What to put in it
—How to submit it
—How codes will be approved
—How to administer the codes after approval
—In fact a complete pocket guide, "What to do 'til the doctor comes" on this all-important business revival program

tors. NIRA "is a ray of sunshine—a way out of the jungle," as one Portland contractor expressed it.

**Northern California**—Committees of contractors, under the leadership of Lloyd Flatland, chapter president; Ed Martin, secretary; and Frank Sievers, national executive committeeman, have organized a "flying squadron," and called meetings in Oakland, Stockton, Sacramento, San Rafael, San Mateo, San Jose, Watsonville, signing up "proxies" and membership. At a mass meeting, June 29, in San Francisco, a uniform scale for northern California was adopted—$40 for a 30 hr. week, for journeymen; a minimum of $15 per 30 hr. week for apprentices or helpers. The tentative code of fair competition submitted by L. W. Davis, managing director, N. E. C. A., was approved and suggestions for additional provisions made. Group is strongly in favor of establishing Pacific Coast Electrical Price Service as fair minimum price.

**Southern California**—Southern California Electrical Contractors Assn. special mass meeting was called by Glenn Arbogast, president, June 19. Contractors from Bakersfield, Santa Barbara, San Diego and Imperial valley came; 300 attendance, decided to reorganize. A second meeting was held June 29, and work well started. A. H. Gudie, Biddle Trade Bureau, acting secretary. Affiliation with N. E. C. A. is being considered.

**Other Regions**—Get in touch with nearest contractors' association, or directly with Laurence W. Davis, N. E. C. A., 420 Lexington Ave., New York City.

* * *

**Dealers**—Retailers eventually will come under the act, too, official opinion declares, although basic industries must be "recovered" first. In anticipation of this, retail groups throughout the West are organizing, perfecting codes to be submitted.

**Radio and Appliance Trade Association**—in San Francisco, according to George Curtiss, secretary, is planning to extend its activitiy to include all appliance dealers as well as radio, and to serve the northern California region. Address, Western Furniture Exchange, San Francisco.

**Southern California**—Radio, Refrigeration and Electric Appliance Assn., is the new name of the former Radio Trades Assn. Mr. Guilfoil, secretary of the Retail Hardware Assn., is secretary of the new organization.

**Retail Furniture Assn.**—in San Francisco, is preparing a code for submission to Washington, under the guidance of A. Cameron Ball, secretary.

**Other Regions**—Since the government administrator evidently wants to simplify the operation of the act as much as possible, it is likely that many retail groups with similar problems will be urged to present a joint retail code. Retailers will do well to keep in touch with their local chambers of commerce and the U.S. Department of Commerce.

* * *

**Wholesalers**—National Electrical Wholesalers' Assn., is preparing a code, much along the lines of that recently approved by the Federal Trade Commission. The organization set up to administer that code is preparing to take on the new responsibility for a much more effective supervision of wholesaling practices. On the Pacific Coast there is the Pacific division, N. E. W. A. A very active and well organized group is the Puget Sound Electrical Wholesalers' Assn. Such old lines as "association" and "non-association" wholesalers are expected to be removed. The administrators or commissioners for this region are: J. C. Davidson, Denver; N. G. Harvey, Los Angeles; O. B. Stubbs, Portland; C. B. Hawley, Salt Lake City; Dave E. Harris, San Francisco; Harry Byrne, Seattle; and H. L. Bargion, Spokane. Al H. Nicoll, San Francisco, is chairman of the Pacific Division, N. E. W. A.; Arthur H. Elliott is secretary. Any of these men can furnish details of the wholesaler's part in the NIRA program.

**Manufacturers**—National Electrical Manufacturers' Assn. is presenting a code to the administrator among the first of the industries. Local manufacturers should contact N. E. M. A. headquarters, now moved to 155 East 44th St., New York City, or representatives of the organization here in the West. Both Westinghouse and General Electric Co. executives can furnish information. In some cases local manufacturers may combine their efforts with those of local manufacturers' associations, reached through chambers of commerce.

**Manufacturers' Representatives**—Although presumably their interests will be served under the N. E. M. A. code, many local agents and manufacturers' representatives feel the need of an organization to set standards of competition in their field. Under the leadership of Sam Russell, of San Francisco, an organization meeting was called June 29, at which the first steps toward such an association were taken.

### *Forming a Code*

**Organizing**—Any group not now organized and desiring to do so, if no association exists to serve them already, may get information on the procedure to follow from the U. S. Dept. of Commerce. Where an organization exists, even if you do not like it, it is better to work through it. Minorities will get an opportunity to express themselves on codes before acceptance.

**Decide**—first on hours, minimum wages, working conditions. The first code to be heard in Washington had nothing else in it. The code on competitive practices will be heard later. Exact form of presentation can be obtained through chambers of commerce and national associations.

**Competition**—Write the code of fair competition embodying whatever of the following points you feel are necessary in your type of business: Selling below cost, definition of cost, secret discounts or rebates, a one-bid policy, time and place of bid opening, accurate specifications, handling work consistent with resources, self financing, shopping prices or bids, abiding by codes and ordinances, regulation of credit through a bureau, price discrimination, premiums, false advertising, inducing breach of contract, defamation of competitor, selling merchandise after removing labels, misleading guarantees, price cutting, enticing competitors' employees, uniform contracts, bankrupt stock disposal, definitions of channels of distribution, establishment of list prices without proper consideration for cost of selling and distribution, group selling, grading of products, simplification and standardization, cooperative advertising, terms of sale, false invoicing, freight absorption, piracy of design, dumping, misbranding, or other practices found to exist in your particular line of activity.

**All Codes Must**—contain the three paragraphs of the Act relating to labor's right to bargain collectively. All codes must also contain the provision that no part of that code shall be interpreted or applied in such a manner as to promote monopolies, permit unfair competition, eliminate or oppress small enterprises, or discriminate against small enterprises.

**Approval**—of codes will follow a procedure of submittal to the administrator, first revision after suggested changes, public hearing at which all persons interested in any way, either directly or indirectly, may have their say. After such hearing, a revised draft will be submitted to the president, and when approved, will become a "law merchant" for that industry or subdivision of industry.

**How Policed**—National committees will be set up within associations, with local committees to act on behalf of the national groups. Action can be brought by these local committees legally since: (1) violation of any provision of the code is a misdemeanor; (2) may be prevented by an injunction in Federal District Courts; (3) proceedings may be brought under the Federal Trade Commission Act; (4) where necessary the President is empowered to set up licenses and revoke them for violation of a code.

**Local Legislation**—Sympathetic legislation is already in formation in California to duplicate the national act, and make it completely certain of enforcement within the state. Other states will doubtless do likewise. California's legislature at its last session passed laws giving teeth to efforts to stop selling below cost, enforce maintaining a contract for a stipulated selling price with a manufacturer, and outlawing secret rebates.

**Write to Electrical West for any information desired on this all important business revival movement.**

# Engineering and Construction

## Synchronizing Breakers

IN CONNECTION with the preliminary engineering for the installation of the twelfth generating unit at Southern California Edison Co.'s Long Beach steam station, tests were conducted to determine the feasibility of synchronizing 100,000-kw. turbo-generators by means of 220-kv. oil circuit breakers. This would permit the omission of low-tension synchronizing breakers between the generator and the transformers, with their disconnecting switches and breaker houses, thus effecting a considerable saving in installation costs.

There are several similar installations at lower voltages on the Edison system. In 1920, when Kern River No. 3 power house, comprising two 32,000-kw. units, was built, the low-tension synchronizing breakers were omitted, the generators were connected directly to the low-tension side of the transformer banks and the high-tension (66-kv.) circuit breakers were used for synchronizing. Again in 1924, when units Nos. 7 and 8 of 42,500-kw. capacity each were installed at Long Beach, the low-tension breakers were left out because of the satisfactory results obtained at Kern River. Two years later a 60,000-kw. unit (No. 9) went in with the same arrangement, all of the 66-kv. breakers at Long Beach having a closing time of 0.8 second or 40 cycles on a 50-cycle system.

When units Nos. 10 and 11 were built in 1928 and 1930, feeding into the 220-kv. system, they consisted of a 100,000-kw., 16,500-volt generator; 16.5-kv. synchronizing breakers; a 120,000-kva., 16.5/220-kv. transformer bank; and 220-kv. oil circuit breakers, connected as shown in Fig. 1.

The 220-kv. breakers are rated at 600 amp. with a contact travel of slightly more than 3 ft. and, being solenoid-operated, are inherently slow in closing. The unit No. 10 breakers have a closing time of 1.5 seconds or 75 cycles and those with No. 11 have a closing time of 1.25 seconds or 62.5 cycles. The synchronizing breakers, rated at 4,000 amp., 25,000 volts, have a closing time of 12 cycles or 0.24 seconds. This fast closing is obtained by means of a powerful mechanism in which springs are compressed in advance by a motor and released by a solenoid when ready to operate the switch.

Installation of these low-tension breakers was made necessary by the difficulty of obtaining potential for synchronizing on the 220-kv. side, as well as by the slow operating time of the 220-kv. units. Potential transformers would have been expensive and impractical, and potential network devices, while comparatively inexpensive, were then new and untried. However, the latter were installed on the circuit breakers for the two outgoing 330-kv. lines to obtain potential for voltmeter and hot line indication. Oil switch bushings were of the condenser type with a potential tap of 4,000 volts to ground brought out on each; potential devices were connected to these 4,000-volt taps and, by means of a small transformer and a network of resistance, reactance and capacity, the potential reduced to 110 volts and corrected for phase angle.

With the satisfactory performance of these network devices after two years of use indicating that they might be used on the transformer breakers to obtain synchronizing potential at a relatively small cost, the only reason for including synchronizing breakers on further installations would be because the 220-kv. units operate slowly.

With ordinary synchronizing breakers, which operate almost instantaneously, synchronizing is a simple matter as the control switch can be closed safely at any time the synchroscope comes to rest momentarily at the "in phase" position. With a 66-kv. breaker having a closing time of 0.8 second, this cannot be done safely as the speed of the generator and of the system are changing constantly and the generator and system frequencies may shift suddenly in opposite directions after the control switch is operated, but

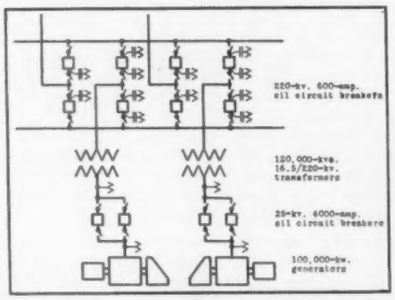
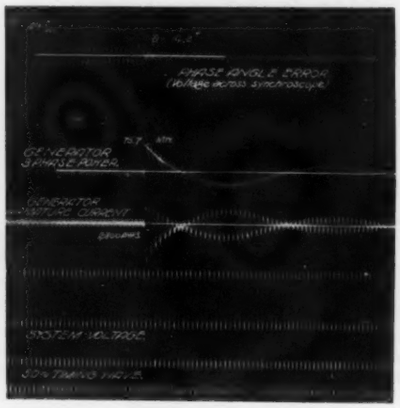



*Fig. 1—Connections of the main units at Long Beach steam plant No. 3*

before the breaker contacts have closed resulting in a "shot" that is badly out of phase. It is comparatively easy, however, to adjust the incoming unit to a frequency a trifle above or below that of the system, so as to have the synchroscope slowly rotating, and to estimate the time required for the breaker to close, operating the control switch at the exact point in the rotation for the breaker contacts to close just as the synchroscope reaches "12 o'clock."

Operating experience was entirely satisfactory using 66-kv. breakers with units as large as 60,000-kw. capacity. About this time 220-kv. breakers were being developed with a much shorter operating time and manufacturers were promising further developments which would result in the units closing in much less than one second. In order to determine the importance of speed of closing, the aforementioned series of tests was undertaken at the Long Beach plant.

*Fig. —2—Oscillograms of a synchronizing test to determine the magnitude of current and power transients when purposely closing the breaker out of phase*



### Theory of Tests

To clarify the description of these tests, a brief review of underlying theory and the assumptions made is necessary. The maximum possible initial value of the power transient can be estimated from the approximate formula:

$$P = \frac{\text{Rating of generator}}{X} \text{ Sin } \theta$$

where X is the sum of the generator transient reactance, the transformer reactance and the reactance of the system to which the generator is synchronized. All reactances must be expressed in per cent unit values on a base equal to the rating of the generator. For the generator under consideration, this formula has the following numerical value:

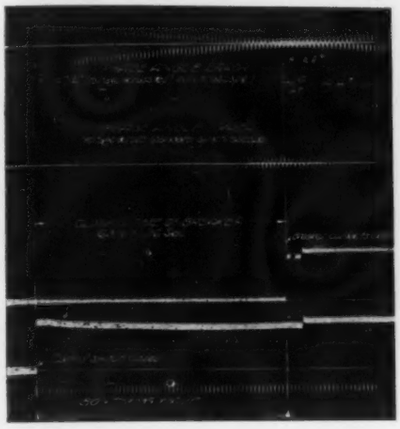
$P = 300{,}000 \sin \theta$ kilowatts.

Phase angle can be obtained by measuring the voltage across the synchroscope. When 110-volt potential is used in synchronizing, this formula can be used:

$$\theta = 2 \sin^{-1} \frac{E_s}{220}$$

When considering the possibility of damage to the machine that would result from poor synchronizing, it appeared that the stresses in coupling between turbine and generator during the

*Fig. 4.—Oscillogram of a synchronizing test to determine the accuracy of synchronizing with slow 220-kv. oil circuit breakers*



# With 220-kv.

By O. R. BULKLEY
and
A. A. KRONEBURG
Southern California Edison Co. Ltd.

power transient should be analyzed. The moments of inertia of the turbine spindle and generators are:

| | |
|---|---|
| Turbine | 400,000 lb.ft.² |
| Main generator | 580,000 lb.ft.² |
| Auxiliary generator | 24,100 lb.ft.² |
| Total | 1,004,100 lb.ft.² |

With the inertia of the turbine spindle equal to only 40 per cent of the inertia of the three rotors combined, the power transmitted by the coupling between generators and turbine spindle would be 40 per cent of the instantaneous power and would be small as compared to the load of 110,000 kw. transmitted continuously by this coupling with the maximum load sometimes carried by the unit.

Tests were to determine: (1) if the closing time of the oil circuit breaker changes as a result of wear, variation in control voltage, etc.; (2) the magnitudes of power transients when the oil breaker contacts close at an instant when the voltages are out of phase by a certain angle; and (3) what phase angle error can be expected under conditions of manual synchronizing with slow closing oil circuit breakers.

### Test Procedure

The first group of tests consisted of an accurate check made on the operating time of the oil circuit breakers of units Nos. 9, 10 and 11, and the results compared with the operating times obtained during installation tests. These tests were repeated at reduced control battery voltages. The comparison revealed that there had been no perceptible change in operating time since their installation and that any variations due to small changes in battery voltage would not seriously affect their use in synchronizing. A second group of tests was made to determine the magnitude of power transients resulting from synchronizing a generator at some phase angle error. It was measured by setting up an oscillograph to record system voltage, 3-phase power of the generator, generator armature current and the voltage across the synchroscope. The generator was synchronized to the system using the 16.5-kv. oil circuit breaker. The breaker was purposely closed when the generator was slightly out of phase with respect to the system. This was repeated several times, increasing the phase angle each time until an angle of about 20 deg. was reached. The generator was synchronized both "fast" and "slow" with respect to the system.

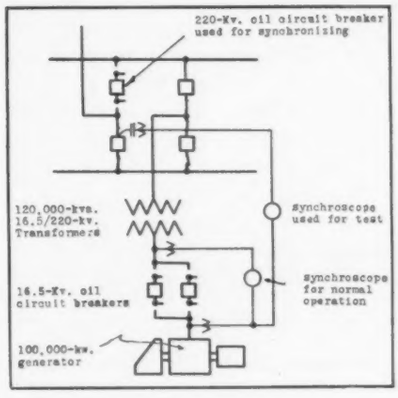

220-Kv. oil circuit breaker used for synchronizing
120,000-kva. 16.5/220-kv. Transformers
Synchroscope used for test
16.5-Kv. oil circuit breakers
Synchroscope for normal operation
100,000-kw. generator

*Fig. 3—Connections used in determining the accuracy of 220-kv. synchronizing*

Fig. 2 shows one of the oscillograms taken during this series of tests.

Effect upon the system voltage during these tests was very slight and the maximum transient phase current was well within the rating of the generator. The transient power on this oscillogram is seen to swing to 75.7 megawatts, quickly falling off to zero, reversing in direction and damping out. A study of the oscillograms also reveals that the magnitude of the power transient, or in other words, the severity of the "bump," is the same for a given phase angle error whether the generator is "fast" or "slow" with respect to the system, as the amount of energy is the same whether it is used to accelerate or to decelerate the rotor of the machine. As a result of this second group of tests it was decided that a phase angle error of 30 deg. at the instant the circuit breaker contacts close could be assumed as a conservative value.

### Tests on 220-Kv. Breakers

Next, it was necessary to determine the accuracy that could be expected from manual synchronizing with 220-kv. oil circuit breakers. It was assumed that oil circuit breakers as slow as these could be closed quite accurately by energizing the control circuit at the instant the rotating pointer of the synchroscope passed a predetermined point marked on the glass cover of the synchroscope, provided the speed of rotation of the pointer could be estimated or gaged accurately.

A small black and white metal disc, 2½ in. in diameter, was mounted at the center of the synchroscope just in front of the glass and connected by a small belt to a Telechron motor mounted at one side of the instrument. The speed of the disc was adjusted to 4 r.p.m. Markers were placed on the glass cover at 36 deg. each side of the "in phase" position of the synchroscope to correspond to an operating time delay of 1.5 seconds. With this precision method it was necessary only to adjust the speed of the generator so that the pointer of the synchroscope would rotate with the marked disc, and to operate the control switch at the instant the pointer passed the 36-deg. mark preceding the "in phase" position. Any phase angle error at closing then would be due to a change of system frequency during the closing stroke of the oil circuit breaker.

The bus, or running potential, was

**Table I—Results of Tests of Manually Synchronizing 220-Kv. Breakers**

| Test No. | Phase Angle at Time of Energizing Control (Deg.) | Phase Angle at Time of Closure (Deg.) | Speed Rotation of Synchroscope Pointer (r.p.m.) | Time of Closing in Seconds | Remarks |
|---|---|---|---|---|---|
| 1 | 23.0 | 17.6 | 5.40 | 1.24 | Late |
| 2 | 10.8 | 8.2 | 2.56 | 1.23 | Late |
| 3 | 17.6 | 10.8 | 3.75 | 1.26 | Late |
| 4 | 32.8 | 2.6 | 4.68 | 1.26 | Good |
| 5 | 27.0 | 5.4 | 4.37 | 1.24 | Fair |
| 6 | 17.6 | 13.6 | 4.14 | 1.26 | Late |
| 7 | 21.6 | 17.6 | 5.24 | 1.25 | Late |
| 8 | 27.2 | 2.8 | 3.24 | 1.26 | Good |
| 9 | 28.7 | 20.4 | 6.50 | 1.26 | Late |
| 10 | 38.6 | 0 | 5.20 | 1.24 | Excellent |
| 11 | 36.0 | 8.2 | 3.70 | 1.26 | Fair |
| 12 | 31.4 | 10.8 | 5.60 | 1.26 | Late |
| 13 | 38.6 | 16.2 | 2.97 | 1.26 | Early |

obtained from a potential device on one of the line oil circuit breakers. The generator, or incoming potential, was taken from the regular 16,500/110-volt potential transformers used for synchronizing. Fig. 3 shows the essential connections used in the test. Oscillograms were taken of the voltage across the synchroscope, the voltage across the standard synchroscope used in normal operation, the time of energizing of the closing circuit, the time of closing of the breaker contacts, and a timing wave. Thirteen exposures were made by closing the oil circuit breaker with the disconnecting switches open. Table 1 shows the results of this group.

Having established that the breakers could be closed with an accuracy well within safe limits, it remained only to do the actual synchronizing. Using the timing disc at first as a precuation, unit No. 10 was synchronized to the system several times with no difficulty whatever. To secure the results of a test extending over a period of time, the transformer 220-kv. oil circuit breakers were equipped with potential devices and all synchronizing was done with these breakers. It was found that the timing disc was not necessary, the operators having no difficulty in estimating the delay of the closing operation at the breaker.

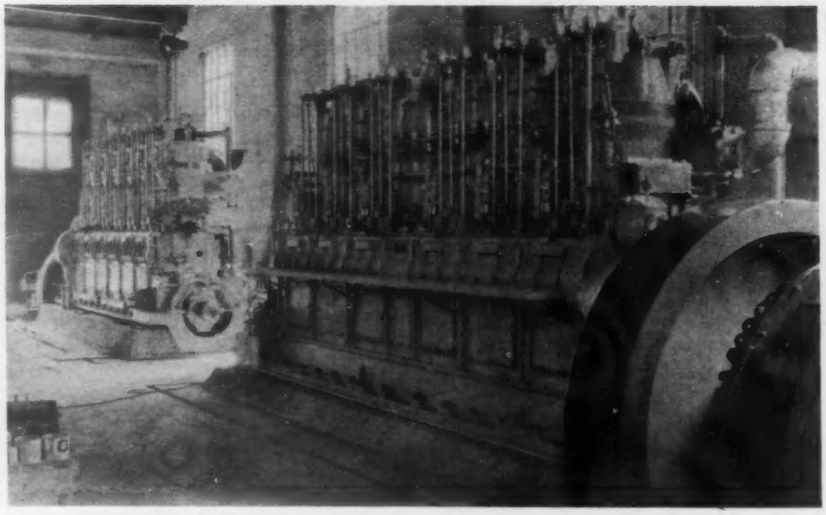
### 220-Kv. Synchronizing Practical

The practice of synchronizing on the high-tension side of the transformer banks eliminated the necessity of energizing the banks from the system before synchronizing. As the high-tension sides of the banks are connected in star, when one of the banks was energized from the 220-kv. busses, a third harmonic ground current surge often took place and was recorded at outlying substations and even initiated high-speed recorders and oscillographs. This surge occurred when the flux produced by the magnetizing current had a certain relation to the flux remaining in the core from the time it was last de-energized. With the new synchronizing practice, the transformers were left connected to the generators and the voltage was built up and allowed to go down with the generators.

In view of the satisfactory results obtained from the tests and the benefit of eliminating ground current surges (also with the purpose of training operators to synchronize machines with slow switches), the practice of synchronizing on the 220-kv. side of the transformers was made permanent and is being used altogether. On any further installations it is planned to extend this system of synchronizing and omit the breakers in the generator leads.

▼

¶ **Out of the Bathroom**—All meters and switches formerly located in bathrooms, a relic of "silver dollar" days in Denver, have been ordered out by city electrician John Malpiede. Is, or isn't that a break for the meter reader?



*Two diesel-electric units in the power house at Yakima Park*

# Complete Electrification For Yakima Park

By R. D. WATERHOUSE
Electrical Engineer,
U.S. National Park Service

TO many the lure of outdoor life is associated with certain hardships and inconveniences incurred by the lack of their accustomed facilities and comforts. In many of the national parks, however, all modern conveniences, including electricity for heating, cooking and illumination, are provided. Representative of this new idea of outdoor comfort is Yakima Park, completed last season, and situated amid the spectacular mountain scenery on the northeast side of Mt. Rainier.

Complete electrification of the resort presented many engineering complications. As the topography is extremely rough, a transmission line connecting with the nearest source of central station power 55 miles away would have been expensive but practical had not the government regulations prohibited overhead lines within national park boundaries to preserve natural beauty. As practically the entire right-of-way of such a transmission line would have been across Rainier National Park, central station service could be had only with prohibitive expenditure. Consequently it was necessary to generate power close to the distribution center in Yakima Park.

Hydro generation appeared to be impractical because streams fed from Rainier glaciers are highly seasonal in flow and because the suspended material in the water cuts metal nozzles and buckets rapidly. As Yakima Park is located on a high plateau, adequate cooling water for a steam station became an immediate problem and a final decision provided for the use of diesel-generating equipment.

Two Washington Iron Works Estep diesel units, one rated 325 hp. and operating at 277 r.p.m. and one 440 hp., 360 r.p.m., now are installed at the power house which is located near the center of the park area. These drive 219-kva. and 250-kva., 60-cycle, 2,300-volt generators with direct-connected exciters. The neutral of each alternator is brought out and grounded. Power is furnished to a conventional five-panel switchboard from which the power circuits take off. The synchronizing panel on the switchboard is equipped with push button speed control for each engine through a special motor-driven throttle so that the operator can synchronize without leaving his position in front of the switchboard. Because of the high cost of pumping water to the park elevation, a spray-type cooling plant is used for the engine cooling water.

Station power and lighting are supplied from a bank of three 5-kva. transformers, two of which are connected in open delta, the third being held as a spare. Emergency excitation and lighting is provided by a 5-kw., 125-volt, d.c. gasoline engine set which can be connected by double-pole knife switches both to the exciter bus and to the leg of the three-phase lighting service which supplies ceiling fixtures in the power house. It is estimated that operating this small emergency set costs more than operating one of the main units.

To preserve scenic beauty of the resort, the transmission and distribution system is entirely underground. Power is transmitted to three load centers, the lodge and its cottages in the main area, the Shadow Lake parking area, and the Lodi pump house. Transmission circuits are carried in parkway cables buried directly in the ground and terminate in underground concrete transformer vaults.

Telephone cables are carried in the same trench as power cables. Transmitting at 4,150 volts with a grounded neutral system produced interference and noise on the telephone circuits which was attributed to poor ground conditions. In the completed underground system, a bare copper neutral is laid in the trench with the power and telephone cables. This neutral is grounded to rods and pipe at the power house and at the various load centers, making a ground with a resistance not exceeding more than 30 ohms. Laying the bare neutral in the trench has eliminated practically all of the inductive noise on the telephone cables.

Typical of the transmission and distribution system is the Sunrise feeder system supplying the main area of the park where the lodge and cabins are located. From the power house, 2,600 ft. away, the Sunrise feeder consists of a three-conductor, No. 6, 5,000-volt parkway cable and one No. 4 bare copper neutral laid in the bottom of a trench 24 in. deep. A warning board was placed over the power cables and the trench backfilled for 12 in., at which level the telephone cables were installed in a similar fashion before filling the trench to ground level.

This circuit passes through a transformer vault containing three 5-kva. transformers which serve a distribution panel at 120/208 volts. Eight circuits are provided for at this point, included among which are two parallel street lighting services. The high voltage circuit continues through the vault to a second transformer vault serving the lodge and cabin area through three 50-kva. transformers. Distribution in the area served by these two vaults is all placed underground by using two- and three-conductor trench-lay cables. Wherever practical, low voltage lighting circuits are placed in the same trench with power and telephone cables.

To obtain water for Yakima Park an automatic pump house was installed at the nearest source of supply approximately 2 miles from the power house. The pump house contains a reciprocating pumping unit driven by a 40-hp. motor and a 300-g.p.m. centrifugal unit driven by a 125-hp. motor. Motors are served through automatic compensators from separate transformer banks fed from a 4,150-volt underground feeder. Carried in the same trench with the power cables is a two-conductor, No. 14 control cable which permits supervision of pump operations from the power house.

The use of a rectifier is an interesting control application. Originally, only the small pumping unit was installed at the pump house and controlled over a pair of wires leading to the power house. With the addition of the second unit, additional control wires would have been necessary unless some new plan could be substituted for the conventional control wiring. With the bare neutral grounded cable, two circuits were available with the existing control wires, each of which could be used to control one unit. In utilizing only two wires for the remote control of each compensator, a Rectox unit was connected across one phase with its d.c. output terminals connected to ground, and one control wire to the push button circuit to the power house. Pressing the "start" button completes the d.c. circuit through a small relay which starts the sequence of normal a.c. control operations on the compensator just as if the operator had pressed the start button at the pump house instead of two miles away. Breaking the push-button circuit shuts down the unit. On the centrifugal unit, the control is complicated by the need for interlocking with a solenoid-operated valve on the pump, as the valve must be closed before the set is started, and the set must not be restarted until hydraulic conditions are normal in case of the failure in the power supply. This adaptation of a Rectox unit for each compensator made the control of both units possible without adding to the remote control circuits.

*This junction box is buried directly in the earth as are the power cables. After internal connections have been made, the box is filled with hot compound which seals and waterproofs the installation*

▼

## Meter Box Developed For New Meter Sequence

By O. W. HOLDEN
Los Angeles Bureau of Power and Light

Taking advantage of the National Electrical Code's new ruling on the meter sequence, the Los Angeles Bureau of Power and Light has developed an outdoor meter box for customer services. Constructed from sheet steel, the box consists essentially of a back and a cover which interlock on the top by means of a reversed lip so that the cover may be swung up as on a hinge or disengaged and completely removed. Corresponding flanges on the bottom are held together by a swinging clamp fitted for a seal wire or padlock to eliminate tampering with the installation.

As the box is intended for mounting on the outside wall of a building, it is finished with a galvanized or cadmium plated exterior. Conduit knockouts on the sides, back and bottom permit mounting either flush on the wall or imbedded in the plaster with concealed conduit services. The meter is mounted directly on a wooden board inserted in the back. A 4x4½-in. glass window in the cover permits readings to be obtained without opening the box. A glare-shield is placed at the top of the window to prevent dust accumulations and reflected light from interfering with meter reading. Over-all dimensions of the box are 18 in. high, 2½ in. deep, and 7½ in. wide.

*Outdoor Meter box now in use on the lines of the Los Angeles Bureau of Power and Light to take advantage of the new National Electrical Code ruling on meter sequence*

The Bureau of Power and Light has found that the use of the box accomplishes several very desirable results. As it is installed outside the house, the meter reader makes only one call and does not bother the consumer by entering the house. The box will enable the Bureau to take advantage of the new sequence ruling with little expense and with its present stock of meters. The installation is theft proof and weatherproof and protects the meter while discouraging the theft of current. Furthermore, the box is so designed that it is not objectionable to the property owner because of size or appearance.

As the box is being made available to wiring contractors at a nominal cost, it can be installed during the construction of a house with little inconvenience. Its adoption for existing installations will be speeded as rapidly as is practical. However, where energy theft is discovered, the consumer can be compelled to install the meter box before service is restored.

▼

¶ **Journeymen Licensed**—Sacramento, Calif., has just passed a licensing ordinance requiring journeymen to be licensed and examined by a board of three—city electrician, labor, and central station representatives—with a fee of $1.50 a year.

## Puncturing Inspiration Point

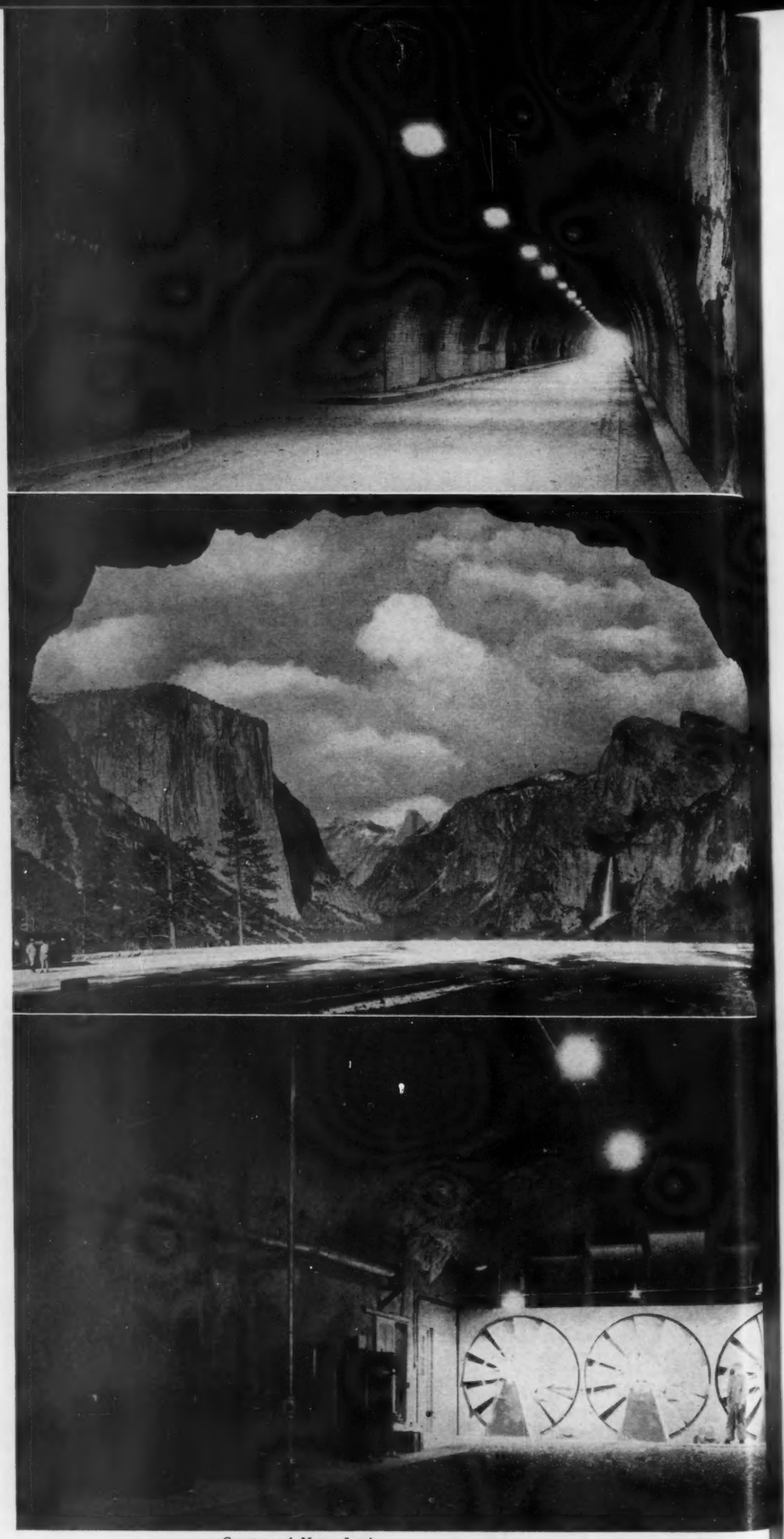
WAWONA tunnel, driven through the solid granite of Inspiration Point, between Yosemite valley and Wawona; a 30-ft. roadway, with a height of 19 ft., a mile long, was opened to traffic June 17. An automobile tunnel, electricity is an indispensible ally to its safe and convenient operation. Lighting, and ventilation automatically operated from the reactions of a carbon monoxide detector apparatus, through Leeds and Northrup apparatus and relays, were installed by the W. B. Baker Co. of San Francisco; G. A. Meyer, vice president of the firm, superintending the job.

Three adits are used to ventilate the tunnel, the center one of which is equipped with dampers, ordinarily open, but closed by means of a G. E. Thrustor when either of the three 25 hp., 100,000 cu. ft. per min. reversible, multiple speed fans are set in motion. When the $CO_2$ reaches 5 per cent the first fan is started on low speed, a bell is rung at each entrance, automatic semaphor stop signals drop, and additional fans are started as required.

Power is brought in underground at 2,300 volts from 700 ft. beyond the entrance so that no poles will obstruct the view to 3 50 kva. transformers for power and a 7½ kw. lighting transformer. Distribution to the ceiling mounted Westinghouse deep bowl street series reflectors is carried in two lead cable circuits from two regulators, in 2-in. conduits, and laid under a removable slab concrete walk along one side. At each end three 6,000 lumen units are used because of approaching daylight intensity, the remainder of the 142 units employing 4,000 lumen lamps, each with automatic cutout.

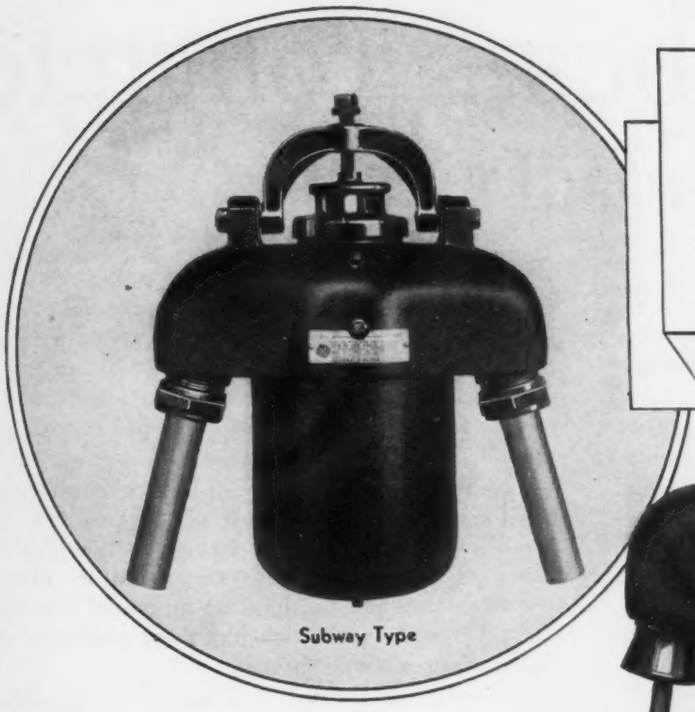
Telephone lines are run to each entrance, and a ten pair cable to the power house a mile away provides automatic chart record of the tunnel system operation there as well as at the switchboard itself. An unusual problem of grounding presented itself in the solid granite tunnel, necessitating a 3,000 ft. run to a spring for a satisfactory ground. Cables are bonded every 500 ft. in the grounding system. C. Champion, of the Bureau of Public Roads, was engineer in charge.

▼



*Upper photo shows lighting as viewed from near the ventilation adit, also revealed. Wiring was carried under the removable cement slab at right. Center photo shows view of Yosemite valley from the mouth of the tunnel. A stop semaphor signal is mounted at each entrance to stop traffic if carbon monoxide becomes dangerous. At right, bottom, the vent fans in the ventilating adit, automatically operated in conjunction with the natural draft louvers above. Transformers were installed along one side*

—*Courtesy of Motor Land*



Subway Type

"Not quite a breaker
* * *
MORE than a cutout"

Pole Type

# WANTED:

## Your Toughest Jobs for These Cutouts

THEY have proved their worth, time and again, by operating successfully under difficult conditions, such as these:

Underground and under water
In inflammable fumes or dust, and in smoke, salt air, or fog
Where heavy short-circuit currents are probable
Where quiet operation is essential
For indoor as well as outdoor locations

G-E oil fuse cutouts, D&W Type, will protect your service and equipment under these adverse conditions because they possess characteristics of both the expulsion-type fuse cutout and the oil circuit breaker. They have a fusible element under oil, by which the circuit is broken positively and quickly. Flame from the arc is confined within the housing, thus preventing external damage or ignition of explosive gases.

For further information about G-E fuse cutouts, write for our new bulletin, GEA-1673. Address the nearest G-E office, or General Electric Company, Dept. 6P-201, Schenectady, New York.

*During the last 13 years, oil fuse cutouts have been manufactured exclusively by the General Electric Company. The successful service record of the many thousands of these cutouts reflects the careful consideration given to their application and to every detail of research, engineering, and manufacture in connection with them.*

420-43

GENERAL ELECTRIC

# BURY Steeltubes IN concrete AND FORGET IT !

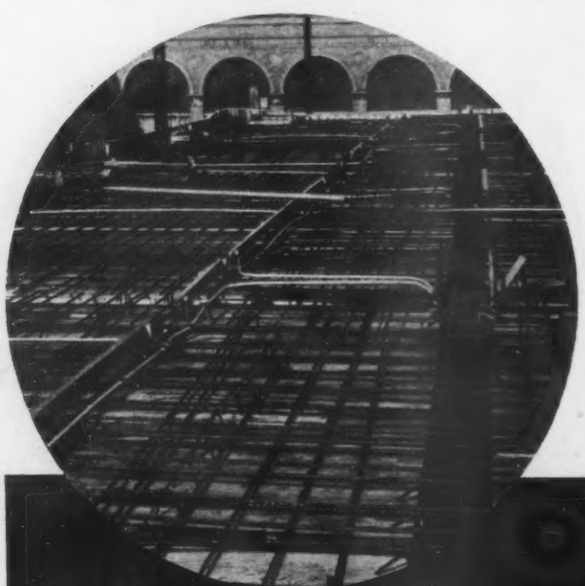
Don t let anyone tell you that Steeltubes, the modern threadless rigid conduit, cannot be used in concrete slab construction. Just bury it and forget it. Let the facts speak for themselves.

MacDonald-Smith Electric Company, Detroit, Mich., recently completed an installation in a new building for the Arctic Dairy Products Co., and this is their comment:

"We used over 10,000 feet of Steeltubes ranging in size from ½ to 1½ inch, all of which was installed in concrete slab. We had the best of luck with the entire installation and our saving was far more than we anticipated. We will recommend Steeltubes for this or any other type of construction on all future work."

And there you have a well-known contractor's opinion of Steeltubes after using it in concrete. He found it strong enough in weld and wall for this exacting service. The savings mentioned are due to ease of cutting and bending, no threading required, and the speed with which joints are connected by means of three simple fittings.

Steeltubes, the pioneer and leader in threadless rigid conduit, has received broad Code and Government approval. Contractors anxious to expand their business should investigate the opportunities Steeltubes holds for making profits on work taken on a close margin.



THE MODERN THREADLESS RIGID CONDUIT

Steeltubes

*Electrical Division*

STEEL AND TUBES, INCORPORATED

World's Largest Producer of Electrically Welded Tubing

CLEVELAND • • • • OHIO

A UNIT OF REPUBLIC STEEL CORPORATION

# Motor Forum

## —*An Idea Exchange*

for the Industrial Man and his practical problems, either mechanical or of policy

### Merchandising Machinery

EVEN machinery must be merchandised. In the good old days it was enhanced by bright red paint and shining brasswork, characteristics that the Latin Americans still insist upon for their markets. Today, machinery is painted an almost universal grey and, in a nation of machinists, is made as unobstrusive as possible. Herberts Machinery Co., of Los Angeles, however, as one of the largest machine tool dealers in the United States, must merchandise its machinery, must sell it, and hence needs that it be spotlighted so that the public may see and buy.

When a new shop, warehouse and plant was built by the company not long ago, on Santa Fe Ave., one of the main arterials to the industrial districts of Los Angeles, not only was the new place to be well-lighted as an industrial building, but Mr. Herberts decided to make the front a show window, and to spotlight machines on the floor so that passing motorists at night might see and be attracted.

The International Electric & Machinery Co., Los Angeles industrial electrical contractors, wired the new place. Along the front windows 100-watt spotlight reflectors were placed so as to be trained upon the machines on display. The other lighting for the warehouse and plant at the rear was done with Holophane high-bay units.

The shop is devoted to the rebuilding and reconditioning of second-hand machinery which is taken in trade. It is rebuilt and reguaranteed when sold. For this machine shop all units were direct-connected to squirrel-cage and slip-ring motors, the feeders coming to the motors under the floor in conduit.

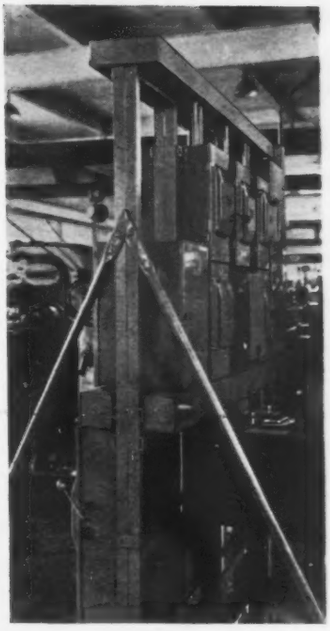
*Machinery dealer's main plant, with window lighting to spot his machines on display*

A 10-ton hoist and traveling crane is supplied direct current by means of a 20-kw., 125-volt generator set, all other motors operating on alternating current.

▼

### Sky Hooks

Mounted on a panel high above the floor for safety, the high voltage test lugs are reached by means of heavily insulated cord threaded through a varnished wooden handle in the shop of Backstrand Bros., Riverside, Calif., motor specialists. The various voltage combinations possible are lettered on the panel and the test leads to motors on test are simply hooked to the proper lugs. One switch "hots up" the panel, through the transformers mounted on the wall behind it.



### Back to Back

Space was conserved and appearance enhanced by mounting switch distribution centers upon an angle iron frame, braced and bolted to the floor, as shown in the illustration, in the plant of the Byron Jackson Co. in Los Angeles, by Quality Electric Co., Ltd. A wiring gutter along the top served the switch cans from the top through short lengths of conduit. The lower switches, of larger size, were fed from the bottom.

▼

### Manufactures Boards

J. L. Mitchell, besides being industrial electrical contractor and engineer at Oxnard, Calif., recently enlarged his facilities when he moved to a new shop at 412 A St. and is now actively engaged in manufacture of special farm switchboard apparatus and switchboards for pumping plant installation. Recently the board for the San Bernardino Water Works was made in this shop and installed by the Standard Electric Works, of San Bernardino.

Mr. Mitchell's facilities include a large metal shop and is combined with a machine shop under separate ownership at the rear.

# Practical Men » » »

ARTHUR VEIT

## Arthur Veit First County Inspector

Arthur Veit, energetic, earnest, hard worker on the various committees of the inspectors association whenever given a job, was selected as the newly appointed electrical inspector for the County of Los Angeles in charge of inspection activities enforcing the new county ordinance recently passed.

For the past thirteen years, Mr. Veit served as city electrician for the city of Alhambra, the past nine years of which he was also first assistant building inspector and for the last four years chief of the building department. During this time he took active part in the Southwest Section, I. A. E. I., serving as chairman of the ordinance committee, codes coordinating committee, a member of the state electrical safety orders committee and at the present time is first vice-president of the Southwest Section. He was also active in the Pacific Coast Building Officials Conference as a member of the general committee, legal committee and chairman of the general committee on electrical ordinances. On both associations he served as chairman of the joint uniform records committee.

During his tenure of office at Alhambra he influenced the city to adopt the first uniform building code in California and his ordinance in Alhambra has been used as the basis for ordinances now in effect in southern California and was the background for the present standard electrical code of the Pacific Coast Electrical Bureau. Previous to inspection work he had approximately five years experience in installation, maintenance and repair of electrical equipment. His education has been an electrical engineering course at I. C. S. and electrical engineering in high school.

▼

¶ **C. H. Rhudy**, serving in the capacity of engineer in the construction department, has been appointed superintendent of transportation of the Southern Sierras Power Co.

¶ **Fred G. Larkin**, representing the Garnett Young Co., in the Pacific Northwest, has been appointed senior vice-president, in charge of Northwest sales, and Ralph B. Peterson, second vice-president, in charge of California and Southwest sales, by the directors of the Garnett Young Co., San Francisco. Mr. Young himself resigned as vice-president, and will retain his position as treasurer, which in this particular organization embraces the policy responsibilities of a president.

▼

¶ **Al Schuler**, formerly sales manager of the Diamond Electric Mfg. Co. with headquarters in Los Angeles, has been appointed manager of the San Francisco branch of that company.

▼

¶ **Kenneth Anderson**, manager of the Los Angeles office of Steel & Tubes, left for Cleveland and Pittsburgh by plane following a visit to San Francisco. He will return by way of the Pacific Northwest.

▼

¶ **No Convention**—this year for the Northwestern Section, I.A.E.I., announces Fred D. Weber, secretary, in the hope that everyone who possibly can will make an effort to attend the convention of the International Association of Electrical Inspectors at the Century of Progress Exposition, Chicago, Sept. 11-15.

▼

¶ **C. A. Kelley**, purchasing agent for the Southern Sierras Power Co., was elected president of the Purchasing Agents' Association of Southern California in May. Mr. Kelley has been active, not only in this assoication, but in the purchasing section of the Pacific Coast Electrical Association.

## Contractors Hold Industry Picnic

Back to the old days of simplicity and good fellowship, the Electrical Contractors Association of Northern California initiated an industry picnic, on June 18, at Trout Farm picnic grove, Stevens Creek, Santa Clara County. Some 300 wives, children and member of the industry flocked to the grove for a day of carefree fun, each one bringing his own lunch. Prizes generously donated by electrical firms in San Francisco were awarded on the basis of the events of the day.

Chairmen of the various committees under Ed Dowd, general chairman, were Jim Landini, music and dance; George Brouillet, races and games; Tom Bennett, prize committee; Maurice Seid, swimming; ice cream and grab bag, Sam Radelfinger; reception, George Smith.

▼

*Stevens Creek canyon resounded with the cheer of the families of the northern California electrical contractors, and their friends in the industry, at the big picnic June 18. Below, left, a regional conference caught in action—Frank O. Sievers, national executive committeeman; Roy Butcher, San Jose; and Ed Martin, secretary of the northern California association, discuss national recovery. Below, right, races of all kinds featured the events of the day. Bottom, left, a group of those in charge of events—left to right, Lloyd Flatland, president of the association; Ralph Wiley, chief, Department of Electricity, San Francisco, and one of the judges of races; Charles Schmitt; Gus Barraca; and Frank Brouillet, who did all the heavy work in connection with the sports. Bottom, right, Ed Dowd, master of ceremonies and chairman of the picnic committee*

## Kearney Exhibit Visits Coast

With an exhibit composed of pole line hardware and electric distribution items, executives of the James R. Kearney Corp., of St. Louis, recently completed a tour of the eleven Western states, stopping in the principal cities to display the exhibit to power company executives and engineers. The party included James R. Kearney, Sr., president of the company; F. W. Kearney, of the sales department; Thomas C. Clark, factory field representative; and H. F. Hartzell, vice-president and general manager of Maydwell & Hartzell, Inc., representatives of the James R. Kearney Corp. in this territory. James R. Kearney, Jr. flew from St. Louis to join the group in San Francisco and continue with its itinerary which included southern California and the Pacific Southwest.

The various members of the party expressed the belief that general business conditions were much improved and were gratified at prospects for improvement on the Pacific Coast.

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**McIntire Connector Co.,** 259 Jefferson St., Newark, N.J., has announced the appointment of Utilities Supply Co., of Los Angeles, as its representative in the southern California territory.

▼

**Gardner Electric Mfg. Co.,** manufacturers of transformers, has announced the appointment of Utilities Supply Co., of Los Angeles, as its representative in southern California and Arizona.

▼

¶ **Wylie Brown,** president of Phelps-Dodge Copper Products Corp., New York, spent part of May and June in Los Angeles in connection with the transmission line business for the Bureau of Power and Light and the Metropolitan Water District.

▼

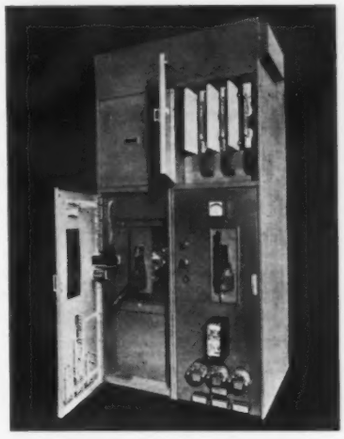
**Fred Radelfinger,** who with his younger brother Sam, for more than twenty years in the electrical contracting business as Radelfinger Brothers, in San Francisco, passed away after a month's illness on May 2, 1933. Mr. Radelfinger was considered one of the standbys of the contractors' association and the firm has made some of San Francisco region's most notable building installations, among them the Paramount Theater, in Oakland, the 450 Sutter St. Building, and others. The firm is now doing the wiring for the new big U. S. Marine hospital at Fort Miley, Sam Radelfinger carrying on the business. Fred Radelfinger's end of the business was that of estimating and buying.

▼

¶ **Kortick Mfg. Co.,** San Francisco, has announced the appointment of Maydwell & Hartzell, Inc., as its exclusive representative and distributor in southern California and Arizona territory.

# New Devices » » »

## *to Use on that Next Job*



### *Standard Cubicle*

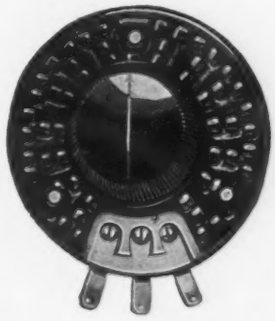
Delta-Star Electric Co., Chicago, Ill., has developed a standardized 7.5-kv. steel-enclosed cubicle which can be assembled in any desired number of units. Tne manually solenoid or motor-operated oil circuit breakers are trip free and operating mechanism interlocks with a hinged door of the disconnecting switch compartment. The bus is located in the top of the compartment which is provided with removable end covers to permit ready connection to future units. The left cubicle is an incoming line unit; the right, a feeder unit. The relays, meters, instruments and control switches are attached to hinged doors, insuring easy access to the wiring and control leads.—Electrical West, July, 1933.

▼

### *Live Line Tools*

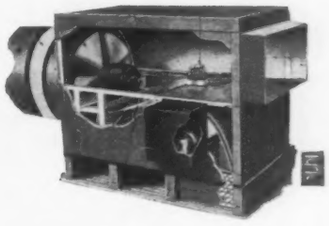
The James R. Kearney Corp., St. Louis, Mo. announces a complete new line of live line tools and accessories. The tools were developed by M. T. Tipsord and U. C. Dunaway. The Kearney display truck is again on the road with a full complement of the new tools. — Electrical West, July, 1933.

▼



### *Ring Rheostat*

Ward Leonard Electric Co., Mount Vernon, N.Y., has announced a new ring-type rheostat for applications requiring a compact, heavy-duty rheostat which provides a fine continuous adjustment. The rheostat can be furnished in values of resistance from 1 to 10,000 ohms. It will dissipate in free air 100 watts continuously with a temperature rise not exceeding 250 deg. C., which is within the limits specified by Underwriters' Laboratories.—Electrical West, July, 1933.



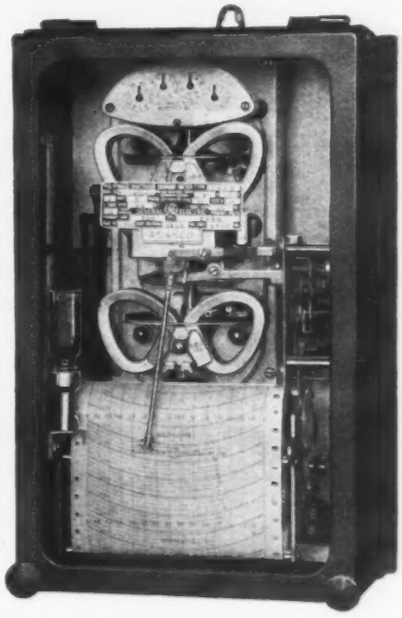
### *Trade Wind*

Andrew G. Orear, ventilating, cooling and air conditioning sales engineer, Los Angeles, announces a new ventilating unit for installation in attics or on roofs for house cooling. The unit, which is known as the "Trade Wind" ventilator, consists of a fan mounted in an insulated housing and controlled either manually or thermostatically. A feature of the system is a damper controlling air flow through the interior of the house, which is operated by a small geared-motor mechanism running in oil. The units are furnished in several sizes depending on the quantity of air to be handled.—Electrical West, July, 1933.

▼

### *Recording Meter*

General Electric Co. announces a new meter which combines in one device a watthour meter and a recording demand meter. The demand mechanism of the new meter, which has been designated as Type DG-1, is of the "block-interval" type, recording on a strip-chart the demand over a definite time interval. The meters have the characteristics of the Type I-16 meter, including high torque and complete temperature compensation for all power factors. The watt-hour register is entirely separated from the demand mechanism, allowing either one to be changed independently to take care of exchanges in ratings of instrument transformers. The timing element is driven by a Telechron motor.—Electrical West, July, 1933.



# What's New

## California Votes Riley Tax Plan

Returning the taxation of utility company's operative property, now on the state tax roll, to the cities and counties, with an assessment determined by the State Board of Equalization, should make municipalities more conscious of the tremendous burden of taxes carried by private utilities, as tax collectors for the commonwealth, and render city councils less anxious to exempt such property from taxation by taking them over into municipal ownership, many officials of power companies feel, as the outcome of the passage of proposition No. 1, at the June 27 election.

The measure, called the Riley-Stewart tax plan, a constitutional amendment, revises the entire tax collecting structure of California. Just how its many revisions will affect various types of property has not yet been defined, the proposition passing chiefly because it held forth the hope of lessened taxation on real estate. The amendment was the plan worked out by State Controller Ray L. Riley and Fred E. Stewart, member of the State Board of Equalization.

▼

## Hollow Cable for Boulder Line

Contract for 1,626 miles of copper cable for the 275,000-volt Boulder Dam-Los Angeles transmission line of the Bureau of Power and Light has been awarded to the General Cable Corp. on a bid of $2,399,600. The conductor for the 271-mi., double-circuit line will be the recently introduced "Heddernheim" single-layer, hollow-core cable of 1.4-in. diameter or 500,000 circ.mil. cross-section. Cable of this type has been used on high-tension lines in Europe.

According to Dwight R. G. Palmer, vice-president of General Cable Corp. who assisted in the negotiations, all of the cable will be fabricated in a new plant which is to be built in Los Angeles. It will be made from copper produced in Arizona, Utah and Nevada, refined, in all probability, in El Paso and shipped to the Pacific Coast for rolling, drawing and stranding. Upon completion of the cable job, the plant will operate as a wire mill to supply the Pacific Coast markets. Announcement has been made that it will be in charge of Sydney M. Smith, who formerly was in charge of the Baltimore fabricating plant of the corporation. Contract calls for initial delivery of conductor between Jan. 1 and March 1, 1934, with completion by Jan. 1, 1935. It is expected that the new plant will be under construction by September.

Prior to calling for bids and awarding contract, extensive tests of various types of conductor were conducted by bureau engineers at the Harris J. Ryan high-tension laboratory at Stanford University in conjunction with the laboratory staff. In the case of the "Heddernheim" cable, three 700-ft. lengths of 1.65-in. diameter conductor were under test at Stanford between Feb. 1 and March 20. Tests are being conducted at the present time on the 1.4-in. diameter cable which is to be used on the line.

In addition to Mr. Palmer, Donald M. Simmons, chief engineer of the General Cable Corp., was on the Pacific Coast during most of the time negotiations for the purchase of the conductor were under way.

Three other bids were submitted to the Bureau of Power and Light for cables. Phelps Dodge Copper Products Corp. submitted a bid of $2,600,000. Anaconda Wire & Cable Co. bid $2,750,000. Aluminum Company of America bid $2,150,000, but bureau officials decided against aluminum cables and in favor of the copper industry of the Pacific Southwest.

*Section of the single-layer, hollow-core copper cable to be used on the Boulder Canyon-Los Angeles 275,000-volt transmission line photographed while undergoing tests at the Ryan laboratory at Stanford*

### Bids Called for Steel Towers

Bids for the manufacture of structural steel for towers for the Los Angeles Bureau of Power and Light's 275,000-volt Boulder Dam transmission line have been called for July 14. At least 2,804 towers varying in height from 65 to 90 ft. involving 28,000 tons of structural steel will be used for the line. Crossarms will be 60 ft. wide. Average spacing of the towers will be 1,000 ft. from Cajon Pass east to the dam site and 800 ft. from Cajon Pass west to Los Angeles.

The eastern section of the line traversing 210 mi. of desert and mountainous country will be strung on single circuit towers. Double circuit towers will be used on the 60 mi. of line from Cajon Pass to Los Angeles.

According to announcement, actual construction on the 271-mi. line will be done by the Power Bureau's own forces. Approximately 55,000 cu.yd. of excavation will be required for tower foundations. In addition, approximately 27,000 cu.yd. of concrete will be placed for tower footings.

### L.A. Bureau's R.F.C. Contract Valid

Validity of the contract for the $22,800,000 loan from the Reconstruction Finance Corp. to the Los Angeles Bureau of Power and Light was sustained in a decision of the California Supreme Court May 26. The funds are those to be used for construction of the Bou'der Canyon-Los Angeles trasmission line. The court issued a writ of mandamus ordering James P. Vroman, secretary of the Water and Power Commission, to sign a contract for the department.

### Construction Camps for Line Started

Three construction camps for the actual work of building the 275,000-volt power transmission line between Los Angeles and Boulder Dam have been started in the desert country between Los Angeles and the Colorado River. The initial camps are located at Harvard, Silver Lake and Kingston Valley. Three additional camps will be erected in the near future near Victorville, Jean, Nev., and close to Boulder Dam.

## Northwestern Rate Order Withdrawn

Withdrawing an order issued in the fall of 1932 pertaining to the valuation and rates of the Northwestern Electric Co., of Portland, Ore., Charles M. Thomas, public utilities commissioner, has ordered a continuation of the hearing.

The orders withdrawn fixed the valuation for the Oregon properties of the company and reduced rates from 16 per cent for residential service to smaller reductions for commercial and power services. The orders were immediately contested in the federal court as confiscatory and a temporary injunction against them was allowed. The commissioner announces as reasons for the withdrawal of the orders changed economic conditions and incomplete testimony.

### Seattle Would Waive Minimum Charge

Minimum service charges provided in electric power and light contracts with industrial establishments would be suspended for one year by the Seattle City Light Department under an ordinance placed before the city council. The bill is designed as a special relief to industries and requires them only to pay for the amount of electrical energy used during the present "slack" times.

### Phoenix Hires Rate Expert

Phoenix, Ariz., has employed B. F. Carter as rate expert and engineer to represent it in the rate investigation and valuation of the Central Arizona Light & Power Co. being conducted by the Arizona Corporation Commission. The investigation and valuation grew out of demands that the commission reduce rates of the Arizona utility.

## More Northwest Rates Under Investigation

Proceeding on its own motion, the Department of Public Works has filed three additional complaints in its general investigation of power and water rates in the state of Washington. Two of the complaints charge the retail and wholesale rates of companies operating in Grays Harbor and Pacific Counties are excessive. In both cases the department will make valuation investigations with hearings to be set later.

One of the complaints has been filed against the Grays Harbor Railway & Light Co.'s retail rates in Aberdeen, Hoquiam and several communities in the vicinity of those two places. A similar complaint involves the Willapa Electric Co.'s rates.

The Department of Public Works recently completed a hearing of the complaint against the wholesale power rates charged the town of Waterville by the Puget Sound Power & Light Co. and a decision in this case is expected about July 15.

### Street Lighting Rates Subject of Survey

Street lighting rates charged cities and towns in the state of Washington are to be the subject of a general investigation, according to E. K. Murray, director of the State Department of Public Works. Requests have been made to cities, towns and power companies to submit complete street lighting data to James W. Carey, chief engineer of the department.

According to Director Murray, the department hopes to establish uniformity in rates and eliminate discrimination. The department also has requested cities and towns owning municipal power systems and power distribution systems to file their own lighting rate data with the department.

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## Federal Tax Shifted To Utilities

Taxes continue to be a major problem for the public utilities. In the last month Congress passed and President Roosevelt signed the bill shifting the 3 per cent electrical energy tax from domestic and commercial consumers onto the power companies direct and exempting municipal plants from the payment of the tax. The change becomes effective Sept. 1.

An additional tax burden was provided in the Industrial Recovery Bill, which levied a tax of $1 per $1,000 of capitalization upon all corporations. A second proviso of this measure affecting the utilities calls for the payment of a 5 per cent tax on all dividends paid. This levy is collectible at the source.

Estimates of the effect of increased municipal, county, state and federal tax levies indicate that taxation will take from 16 to 30 cents of each dollar of gross revenue of Western power companies for 1933.

## Oregon to Vote on State Power Bill

Voters of Oregon will pass final judgment on the proposed state power policy when they go to the polls at the special election July 21 as the result of successful referendum petitions on the state power bill which were circulated and filed by the Security Owners League. This means that the election of the three power commissioners authorized in the measure passed by the last Oregon Legislature and originally set for July 21, will now be postponed until after the fate of the legislative bill itself is determined.

The referendum, however, does not affect the proposed bond issue of $103,000 which is also on the ballot for approval or rejection in the July election. Money from this issue is intended for use by the commission in making a survey of the state's power resources and for a study of possible markets for power developed by the state under the proposed program.

### Another Oregon Power District Proposed

New preliminary petitions to create a power district in Tillamook County, Ore., have been filed with the State Hydro-electric Commission. The new district proposed excludes the towns of Nehalem and Wheeler, which in a previous district election, voted against the formation of the district thus nullifying the former project. The new petitions ask for an election on July 21, the date of the state special election.

### Bone Bill to Go On Ballot

Petitions carrying 49,521 signatures for a referendum on the Bone Power Bill passed by the 1933 Washington state legislature have been filed with the secretary of state at Olympia. A total of 30,000 valid signatures is required for placing the referendum on the ballot. The Bone Power Bill authorizes cities and towns owning power plants to sell electrical energy outside their corporate limits.

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¶ **Brawley Votes Municipal Plant**—By a vote of 901 to 465, the plan of the city council for the erection of a municipal light and power plant to supplant service now supplied by the Southern Sierras Power Co. was approved by the electorate on June 1. The city council had entered into a contract for the construction of a diesel engine plant, and the election followed a petition for a referendum. Injunction proceedings have been filed by the Southern Sierras Power Co. on the grounds that various phases of the procedure followed by the city council are illegal.

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### Madera Considering Diesel Plant

Madera, Calif., is considering a proposal to install a diesel engine to generate power for the city's municipal water system. A proposal has been submitted by Fairbanks-Morse & Co. for the installation of a 150-hp. diesel engine at a cost of $17,460. Action on the proposal will be taken by the city council on July 17.

### Montebello to Vote On Diesel Plant

An election will be held Aug. 1 at Montebello, Calif., on the proposal of the city council to establish a municipal light and power plant to be operated for municipal lighting purposes only. The estimated cost of the proposed plant is $30,000. The council announced a plan to form a light and power commission of five appointed members to supervise operation of the plant.

▼

## San Quentin Engineer Heads Marin League

Taking unto itself a new lease of life on behalf of an electrical ordinance, first for San Rafael and later for the whole of Marin County, the Marvelous Marin Electrical Development League held its first meeting this year in San Rafael last month. New officers were elected for the ensuing year. Harvey Smith, master mechanic of San Quentin prison, was made president, Harry V. Patton was re-elected secretary-treasurer and Joe Lamperdi, North Bay Electric Co., was named vice-president. The nominating committee consisted of

*Marin's Marvelous leaguers at the annual meeting gave Ben Johnson, center, commendation for his long tenure of office*

Harry Ecklund, R. B. Hess and J. A. Delaney.

Speakers of the evening included Clyde Chamblin, California Electrical Construction Co., San Francisco, who talked on public relations and the industry; Bruce Brownlea, of Westinghouse Supply Co., whose subject was "Development Within the Industry"; Frank Kiefer, Pacific Coast Electrical Bureau, who spoke on ordinances; and others of the audience partook in the discussion at the meeting. Decision was reached to submit to the city council of San Rafael the P. C. E. B. standard uniform ordinance. Retiring president, Ben Johnson, of Tamalpais Electric Co., San Anselmo, was given commendation for the work of the league during the two years of his tenure in office. The next meeting is scheduled for July, immediately following the final adoption of the new ordinance in San Rafael.

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## July Annual Meeting Planned

The annual meeting of the Northwest Electric Light & Power Assn. is to be held in Portland about the middle of July with the definite date yet to be set. Plans for continued activities of the association will be considered, and officers for the coming year elected.

Such reorganization as is necessary has been under consideration by a special committee consisting of L. T. Merwin, Northwestern Electric Co., chairman; O. B. Coldwell, Portland General Electric Co., and C. M. Brewer, The California Oregon Power Co. This committee is making a complete study of the form of organization, scope of activities and financing, and will present its report at the annual meeting. Because of the autonomous character of the Northwest association during its twenty-five years of existence, comparatively little change in the association form and composition is expected. The association plans to continue as representative of all branches of the industry in its territory. Principal revisions contemplated will be in its scope of activities and financing.

### Accounting Section

The annual meeting of the Accounting Section was held in Portland June 22-23, 1933, with B. H. Parkinson, Pacific Power & Light Co., chairman. Intensive treatment of a few of the important subjects faced by those carrying on the accounting branch of the business and related departments was the order. Credits and collections, taxes, regulatory legislation, purchasing and storeroom problems, and classifications of accounts were principal subjects discussed which will be more fully reported in a later issue.

The meeting varied from previous meetings in that there were no committee reports presented as such. Subjects were treated in symposium style, with round table discussions, lead by certain members of the section appointed for this purpose, but entered into by all present.

## Bureau Elects New Directors

In line with the program of expansion and increased activity of the Pacific Coast Electrical Bureau recently announced, nine new directors were elected to the organization at its meeting in Los Angeles June 16. Three of the new directors represent utility companies hitherto not represented on the board and two each have been selected from the ranks of the manufacturers, the wholesalers and the electrical contractors. The new directors are: Utility companies—J. B. Wilson, president, Coast Counties Gas & Electric Co., Santa Cruz; Albert Casper, president, Vallejo Electric Light & Power Co.; George T. Bigelow, general agent, Southern Sierras Power Co., Riverside; manufacturers— A. D. Williams, Pacific Coast manager, General Cable Co., San Francisco; W. B. Cranston, Jr., vice-president, Thermador Electrical Mfg. Co., Los Angeles; wholesalers —C. H. Carter, Carter Electric Co., Sacramento; D. D. Cain, Western Light & Fixture Co., Los Angeles; contractors— F. E. Boyd, vice-president, Pacific Electric Motor Co., Oakland and J. G. English, English Electric Co., Los Angeles.

Announcement was made at the meeting that efforts to further the passage of the substandard electric appliance ordinance in Los Angeles were being held up pending negotiations between radio manufacturers in that territory and Underwriters' Laboratory regarding the establishment of a testing service for radio sets on the Pacific Coast. However, this ordinance is being considered by several communities in central and northern California.

Renewed impetus was given to regional committee activities in southern California as the result of a meeting of all committee chairmen held by R. C. McFadden on June 15. Plans were outlined for new business-development drives in the industrial, lighting, rural electrification, and appliance merchandising fields.

Bureau directors discussed the possibilities of holding an Electric Week in various communities throughout the state sometime in October.

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## Cutter Wins Seattle Golf Trophy

Early returns from the spring crop of golf tournaments bring the report that "Charlie" Cutter, district manager of Pacific Electric Mfg. Corp., Seattle, won the Seattle Electric Club's annual tournament with a low net of 70. Runners-up among the 70 contestants for the Harry J. Martin Trophy were J. R. Wells, Fobes Supply Co., and N. L. Bost, National Electric Products, who turned in cards with a net of 72 each. Guest prizes were won by Howard Wright, of the Puget Sound Power & Light Co., Tacoma, and J. J. Agutter, of the J. J. Agutter Co., whose cards showed a net of 67 and 70 respectively.

E. P. MARKEE

## E. P. Markee Elected Club President

SMILING E. P. Markee, manager of the lamp department, General Electric Co., Los Angeles, was elected president of the Los Angeles Electric Club at its annual meeting June 5. Mr. Markee has long been active in lighting affairs in southern California and has participated in all Electric Club activities.

Carl Buratti, Johns-Manville, Inc., was named first vice-president when Cliff Thorburn, Pacific Electric Railway Co., withdrew from the nomination. J. G. Rollow, Los Angeles Gas and Electric Corp., is second vice-president, and R. G. Kenyon, Southern California Edison Co., Ltd., third vice-president. Other officers elected were L. P. Lee, Westinghouse Electric and Mfg. Co., secretary-treasurer; J. P. Carson, Graybar Electric Co., sergeant-at-arms. In addition to the officers, the following were named on the executive committee: H. H. Caldwell, Bureau of Power and Light; W. R. Dressler, Southern California Telephone Co.; B. S. Manuel, Westinghouse Electric Supply Co.; J. H. Cunningham, General Electric Co.; and Tom Norton, Norton & Norton.

The nominating committee selected by Past-President A. E. Hitchner consisted of H. L. Masser, chairman, W. L. Frost, S. E. Gates, Ralph Hopkins and C. A. Heinze, all past presidents. The annual meeting inaugurating the new officers was staged by R. E. Smith, of Southern Californai Edison Co., on June 19. The Electric Club of Los Angeles then entered its summer vacation period to reconvene in September.

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¶ **Safety Engineers** and all those interested in accident prevention gathered together in San Francisco for the All-California Accident Prevention Conference May 24 and 25 at the St. Francis Hotel. W. H. Cameron, managing director of the National Safety Council, was present and addressed many of the meetings. R. E. Fisher, vice-president, P. G. and E., was chairman of the Thursday afternoon session, at which S. C. Dickinson, safety engineer of P. G. and E., spoke on the subject "Accidents Do Affect You."

▼

¶ **Remember,** write for more information on anything reported here if you want it.

## Pepco Stock Returned To Oregon Holders

Retransfer of preferred stock in the Portland Electric Power Co., for which they had traded Central Public Service stock or the actual allotment of new Pepco stock for Central Public Service shares bought for cash, began for some 13,000 Oregon stockholders on June 19. More than 153,000 shares of Central Public Service, approximately 98 per cent of that issued in Oregon by trade and sale, had been deposited with the Portland Title & Trust Co. for transfer.

With the completion of the transfer, Pepco will have the majority of its preferred stock held in Oregon and its common stock held in a voting trust controlled by J. C. Ainsworth, of the United States National Bank, E. B. MacNaughton, of the First National Bank, and Franklin T. Griffith, president of Pepco. In the restoration, more than $7,000,000 of Pepco preferred stock will go back to its former owners while approximately $2,500,000 worth of Pepco, will go to those who paid cash for Central Public Service.

In commenting upon the transfer, Mr. Griffith declared:

"We must solve the street railway business problem so that it will not continue as a drain. We must get back the electric power business that has been lost because of the economic crisis."

## Market Review

**California and Intermountain—**

"Higher prices and better business" is an almost forgotten phrase that characterizes this month's market report for this territory. Jobbers and manufacturers report continually improved business over the last few months and the month of June was characterized by substantial advances in practically every line of scheduled material, including conduit, cable and other wiring supplies.

Reflecting the improved outlook is the activity in industrial plants, particularly in California. One steel company is reported to have enough work to last four years due primarily to the orders for bridges in the Bay area. Chemical plants are operating full time, with the major railroads putting additional men to work in shops and other departments.

The outstanding order for the month was the $2,399,000 cable order awarded the General Cable Corp. for the 271-mi. transmission line to be built by the Los Angeles Bureau of Power and Light. Hoover Dam and Metropolitan Water District activity accounted for a large volume of other material, mostly for construction activity. Bids will be opened soon for the 2,800 steel transmission towers which will be used on the Hoover Dam line, towers to be erected by the crews of the Los Angeles Bureau of Power and Light. Breweries projected for the near future range in size from the $275,000 installation of the Samarkand Brewery Co. in San Francisco down to $50,000 for smaller plants in outlying towns. In Los Angeles a paint and varnish factory plans a new three-story plant; the Pacific Electric Railway announces plans for a new substation; in Bakersfield a $250,000 library is proposed; in Pasadena, a $25,000 substation for the Pasadena Municipal Light & Power Department. Other miscellaneous projects include a dry ice plant for Phoenix, Ariz., a new hospital wing for Reno, Nev., a $200,000 lodge building for Sacramento, Calif., a large newspaper plant for Los Angeles and a large Hollywood, Calif., apartment house which will have a complete electrical installation.

In addition to public construction at Hoover Dam and for the Metropolitan Water District, the city of Riverside plans the rebuilding of certain portions of its distribution system; a $700,000 annex is planned for the city hall in Sacramento, and post offices are under way for Whittier, Salinas, Lodi, Hayward, Calif., totaling some $500,000.

The appliance business in this territory is definitely better, with washing machines and vacuum cleaners showing the best results during the month. Re-

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## Barometer

INDUSTRIAL activity in the West for the two months, April and May, of this year were equal, after taking account of a small upward revision in the April figures, but there remains a gain of 9 per cent over last year in contrast with 7 per cent for April. Western food, metal, stone and forest products industries are all more active than they were a year ago and all of them, but the last, gained over April as did also the pulp and paper industry. Chemicals and rubber in contrast remained under their 1932 rate. In metals the rise has been moderate but steady at a level well above last year.

### Indexes of Manufacturing Activity in the Western States

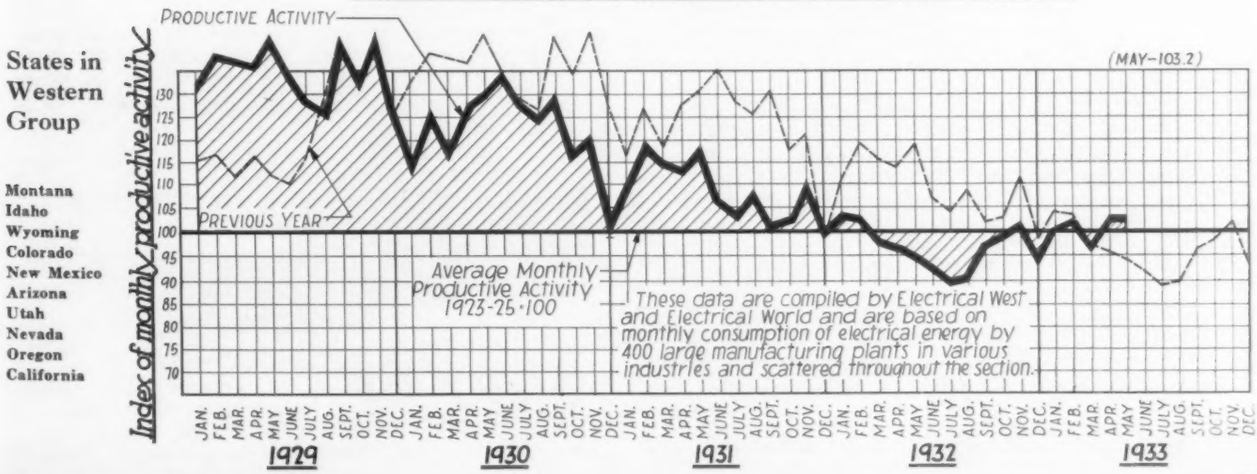
(All figures adjusted for number of working days)

| | May, 1933 | Apr., 1933 | Mar., 1933 | Feb., 1933 | May, 1933 |
|---|---|---|---|---|---|
| All industry | 103.2 | 103.2* | 95.8 | 102.0 | 94.3 |
| Chemicals | 76.2 | 82.4* | 70.3* | 79.8 | 90.1 |
| Food | 125.3 | 121.0* | 108.3 | 118 2 | 115.3 |
| Metals group | 49.2 | 47.5* | 45.4 | 44.8 | 63.2 |
| Forest products | 136.6 | 142.0* | 136.7 | 144.8 | 117.0 |
| Paper and pulp | 139 2 | 130.0 | 111.0 | 127.0 | 143.0 |
| Rubber | 73.2 | 56.2 | 27.9 | 46.8 | 100.7 |
| Shipbuilding | 98.1 | 105.4 | 96.3 | 122.3 | 102.5 |
| Stone, clay and grass | 104.2 | 91.0* | 109.3 | 83.7 | 79.1 |

*Revision

### General Productive Activity in the Western States

*Adjusted for number of working days but not for seasonal variation*



frigerators also have been going well but expected price advances may retard the sale of this item. Small radio sets are moving very rapidly but the radio line has been captivated by the automobile radio which is selling so fast that many manufacturers are far behind in their orders.

**Pacific Northwest—**

Long becalmned in the doldrums of the depression, business in the Pacific Northwest has taken on an exceedingly improved outlook. More negotiations have been opened on electrical equipment, confined largely to industrial and transportation industries. The sudden shoot upward is mainly because the basic industry, lumber, is coming to life. Practically all mills have opened, many running two or three shifts. Contributing to this situation is the recent meeting of the lumber industry in Tacoma, in which the association adopted a lumber code allocating orders for lumber among its members. Distribution is to be made according to grade and quality of the lumber required. This control means not only that the association can regulate the output and thereby the cut and number of men employed in each mill but also that stability can be maintained regardless of fluctuations in demand for the product.

Pulp and paper mills still continue to run at full time and their operators are very optimistic as regards future business.

The discard of the gold standard and the rise of price of copper has made a marked effect on the copper and silver mining. Much activity is reported, especially in the Butte area. Railroad and steamship lines also are starting to buy after a long recess. Breweries also are aiding in the rejuvenation of purchases with a considerable demand for motor, control and lighting equipment.

The central station industry is still very dormant and adverse legislation in Washington tends to retard immediate improvement. Improved output figures, however, are expected to release much pent-up purchasing power in this branch of the industry.

Industrial projects for this territory include a new $100,000 brewery to be erected in Seattle by the Century Brewery Co. of Canada, a $75,000 library for Everett, Wash., a $150,000 hospital for the state of Washington to be erected in Sedro-Wooley, Wash., a creamery for Klamath Falls, Ore., and a $300,000 apartment building for Bremerton, Wash.

Warm weather in this section has caused a marked improvement in merchandising business with electric ranges and refrigerators moving well during June. Building permit figures for the Northwest states have shown a decided upward trend since the first of the year which, together with other optimistic reports, have gone far to stimulate confidence and release the frozen purchasing power which paralyzed business during the past twelve months.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# WHERE TO BUY IT IN THE WEST

**This guide to products supplements The Manufacturers' Directory, published in the April, 1933 issue. Under the name of the appliance or equipment will be listed the advertisers of that product; by cross-checking with the listings in the directory, the local agents for any item thus can be found. If further information is desired, write to ELECTRICAL WEST, 883 Mission St., San Francisco, Calif. While the same care has been exercised in compiling this guide as in the directory, the publishers assume no responsibility for errors or omissions, but will make such corrections and additions as are requested within the restrictions set.**

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Graybar Elec. Co., Inc.

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James R. Kearney Corp.
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**Batteries, Storage**
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**Boxes**
General Cable Corp.
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**Cable Accessories**
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**Cables**
General Cable Corp.
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**Fittings, Conduit**
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General Elec. Co.
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**Governors**
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Pacific Coast Elec'l Ass'n
Pacific Coast Elec'l Bureau
Young's Adv. Agency

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W. D. Howze Sales Co.

**Steel Products**
Pacific Coast Steel Corp.

**Switchboards**
Allis-Chalmers Mfg. Co.

**Switches, High Tension**
James R. Kearney Corp.
General Elec. Co.
W. W. Kirk
Westinghouse Elec. & Mfg. Co.

**Switches, Meter Test**
Meter Devices Co.

**Switches, Safety**
Mongerson's Elec'l Mach. Works.

**Switches, Time**
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Landis & Gyr Co.
Sangamo Elec. Co.
Tork Clocks, Inc.
Triplex Products Corp.

**Switchgear**
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**Tapes**
Johns-Manville Corp.

**Terminals, Cable**
General Cable Corp.
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**Valves**
Pelton Water Wheel Co.
S. Morgan Smith Co.

**Washers, Clothes**
Little Giant, Inc., Ltd.

**Water Wheels**
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**Wire**
Crescent Ins. Wire & Cable Co.
Driver-Harris Co.
General Cable Corp.
General Elec. Co.
Graybar Elec. Co., Inc.
Indiana Steel & Wire Co.
C. E. Ingalls (Copperweld).
Maydwell & Hartzell, Inc.
John A. Roebling's Sons Co.
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**Wiring Supplies**
Graybar Elec. Co., Inc.
Russell & Stoll Co.
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Thomas & Betts Co.
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# *Profits Are Trumps*

CARDS in the New Deal have been dealt to business and industry. Now the problem is to play them successfully. For when Congress passed and President Roosevelt signed the Industrial Recovery Bill, American industry entered a new phase of revolution, bloodless because most of the blood already had been spilled in the dog-eat-dog era of "free competition" and "rugged individualism."

Having demonstrated its inability to cope individually with three years of depression conditions, business today finds itself in partnership with the federal government to bring order out of chaos collectively. It finds itself faced with planned integration of wages, hours of labor, volume of production, costs and prices under rules administered by a federal umpire clothed with more power than any dictator. Before it lies an uncharted sea, lacking any of the time-honored landmarks—a sea where precedent will count for little and where experiment must be substituted for experience.

WHERE does the electrical industry fit into this picture? What are its responsibilities and opportunities? The answers to these questions depend upon the industry itself—upon its courage, its initiative, its planning, and more particularly, upon its philosophy. To some the program appears to be in direct violation of all democratic concepts—a plunge into socialism—but to the vast majority it holds out the promise of putting renewed life and pick-up into an economic machine that was groaning and creaking dangerously near to a dead standstill. The rational viewpoint to adopt is one of common sense and not one of hysteria.

VIEWED in this light, the outlook for the electrical utilities is definitely favorable. If the bill accomplishes its avowed purpose of stimulating purchasing power, employment and industrial operations generally, there should be a resumption of energy use which should offset the additional tax impositions, relieve the pressure for rate concessions and restore some measure of prosperity. Certainly the utilities are inured to and experienced in governmental control and regulation and have nothing to fear on that score.

AS for the rest of the industry, the New Deal holds forth real promise for better times. Under the broad powers of organization, coordination and cooperation which it grants to associations, evils that have destroyed profits and threatened the stability of business are to be corrected. The incentive to do business ethically, profitably and legitimately will be restored. The chisel is declared illegal and the price-cutter with his torpedoes must reform "or else—"

Contractors, manufacturers, wholesalers and retailers already are formulating codes designed to set their own houses in order. Once this is done then attention can be directed to the real problem—constructive selling. Protected from the deviltry of price-cutting, the industry can sell on merit, fair price, quality and ability to serve.

NOTE that we say **"the industry"** can sell. The sales job is going to be an industry job. The "new competition" concerning which much has been written during recent years is going to become a reality. The consumer's dollar—and the entire program is designed to make more of them—is to be the focal point of all industries organized on a scale hitherto impossible of achievement. It will be automobiles versus the electrical industry, in fact, all industries against ours. That's why selling will be an **industry** job. That's why cooperation must be tangible rather than ephemeral. That's why business-stimulating organizations representing all branches of the industry will be vital factors.

THIS is the dawn of a tomorrow. Industry has been given an "Industrial Recovery Bill." Industrial recovery will depend upon how industry takes advantage of it. Let the **combined** electrical industry be one of the first to grasp the opportunities the new era presents.

*the New* ELECTRICAL WEST

*Established 1887*

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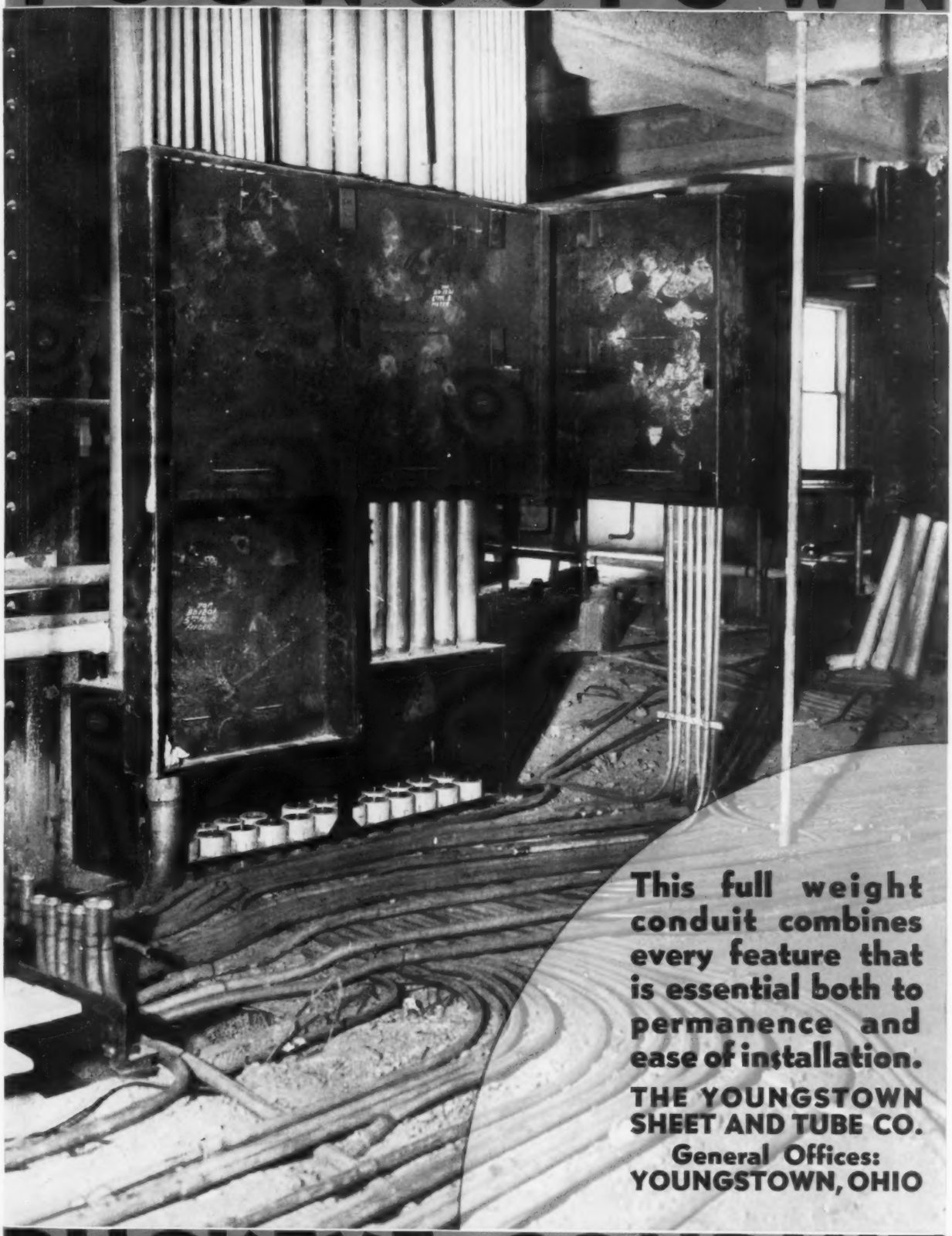

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THESE warm summer months—when a woman wants to entertain, to visit, to join with her family on pleasant outings. That's when she thinks she's a drudge.

She is in the frame of mind to buy things that will save time, relieve her of tiresome work. An electric washing machine . . . a refrigerator . . . a vacuum cleaner . . . or any of your many other electrical conveniences.

Take out your pencil and lay down a definite plan of action for these next few months of opportunity. He are some suggestions:

1. Put on weekly drives. Each week concentrate sales, advertising and display effort on *one item*. Feature a different article each week.

2. Equip a truck with a representative selection of household appliances—a traveling show room. Send out salesmen with it to cover your locality from door to door.

3. Hold a window-guessing contest, or any other kind of stunt to focus women's interest on your store.

4. Use local newspaper advertising, home demonstrations, leaflets enclosed in your monthly statements—every practical means of arousing interest and supplementing your sales activities.

For further information, merchandising ideas, communicate with the Pacific Coast Electrical Bureau. This Bureau is anxious to serve you in every possible way.

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